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Address

SOME RECENT STUDIES ON HEREDITY.*

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For convenience of presentation we may speak of studies on heredity as having followed three principal lines of inquiry. One of these, often known as the statistical or biometric method, includes the statistical treatment by precise mathematical methods of large masses of data obtained by the observation of heredity and variation as they occur under natural conditions. With the results in this direction I shall in no way attempt to deal. I will only recall that the most widely known of them is embodied in Francis Galton's so-called law of ancestral inheritance, which attempts to state the quantitative effect on the offspring of their entire ancestry, including not only the two parents, but also all the more remote progenitors.

The second method is that of experiment, pre-eminently by observing the operation of heredity in hybrid forms produced by crossing two different species, races or breeds. The importance of such experiments does not lie in the fact that they deal with hybrids as such. It arises in the main from the practical consideration that when the parental forms differ visibly in one or more characters these can be more readily recognized, and hence more easily traced in the offspring, than is the case with pure bred forms. Apart from this there is every reason to believe that the operation of heredity in hybrids does not differ in any essential way from that in pure bred forms; and hence the former may be taken to indicate what takes place in the latter where the parental forms do not differ in any conspicuous way. Probably the most important, and certainly the best known, of the general results in this direction is the so-called law of Mendel (or, better, the Mendelian principle) to which we shall presently return. This principle is probably more complex, and perhaps also of more limited application, than was at first supposed; but no other phenomenon of heredity is of greater interest, because it gives a new basis for a view of heredity as a whole.

The third method is an indirect one, which includes the attempt to determine and study in detail the physical basis of heredity in the germ cells. It is especially this aspect of the subject that I shall endeavor in some degree to set forth; but this can not be done successfully without holding clearly in view some of the more striking facts of Mendelian inheritance, even though their brief review must run the risk of going over ground already very familiar.

"UNIT CHARACTERS" AND HEREDITY.

The most interesting of the specific results obtained by the experimental method relate to the so-called unit characters and their behavior in heredity. The earlier observers thought of the hereditary organization on the whole in the way in which it is popularly regarded, as a single and indivisible unit. The result of the union of two such units in reproduction was conceived as producing a new unit which is, on the whole, a blend of the original two, somewhat as two liquids of different color may mix to form a third liquid of blended color. There are many hereditary qualities that do, in fact, conform to this; for instance, color and apparently also stature in man. The cross between the white and negro produces mulattoes, which, in turn, produce mulatto children, the two parental color characters having permanently blended. But, as even the earlier observers perceived in some measure, there are other characters that show an entirely different behavior. Such characters, which exhibit the phenomena of Mendelian inheritance and are often spoken of as "unit characters," do not ordinarily mix or blend, but behave almost as if they were separate material entities which may be put together and taken apart again like the cards of a pack or the separate pieces of a mosaic work. A typical example is given by the cross between a common gray mouse and a white or albino mouse of the same extraction. The hybrid thus produced does not show a mixture or blend of gray and white, as might be expected, but *appears* pure gray. But the gray hybrid does not really lack the white character. This character is only concealed or "dominated" by the gray; for it may be recovered or "extracted" in the next generation. If such gray hybrids be bred together their progeny always include in the long run both white and gray forms, and the "extracted" whites thus obtained are not only pure white in appearance, but when paired together produce only white offspring for an indefinite number of generations.

Gray and white may, therefore, be put together in a hybrid and afterward taken apart again without visible modification of either color, except that when the two are associated in the hybrid gray always conceals or dominates white. What is far more remarkable is the fact that gray and white mice issue from the gray hybrids in definite proportions, there being in the long run three grays to one white. This ratio does not often appear in a single litter of mice or in a few litters. In a large number of litters taken collectively it is found to hold with remarkable accuracy—when several hundred such mice are bred even within a fraction of 1 per cent. Clearly, then, the combination and dissociation of the two characters follows some definite law or principle, which suggests that observed in chemical combinations, but is not directly to be compared with the latter, since an element of chance is present, and the result must be treated by the method of probabilities.

The behavior of the white and gray "unit characters" in mice is but an example of a phenomenon of wide occurrence in both plants and animals, and one that is

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shown by a great variety of characters. A few examples of such characters in animals are the length, mode of growth and color of the hair in rabbits and guinea-pigs, the colors and mode of growth of the plumage and the structure of the comb in fowls, the color patterns of snails and butterflies, and even such apparently obscure characters as the color of the silk in the cocoons of silkworms or the peculiar "waltzing" habit of the so-called Japanese mice. Among plants examples are the shapes of leaves, seeds, pods or pollen grains, the color of the flowers, the structure of the seeds and color of the seed-coats, and the hairiness or smoothness of the leaf surface. All these characters (many others might be given) present cases in which, when two contrasting or opposite characters of the same type are crossed, one alone, known as the "dominant," is visible in the first hybrid, while the other is "recessive;" and the offspring of the hybrids in the long run show the two characters in the ratio of three to one. Evidently, therefore, we are dealing with a phenomenon of such wide occurrence that it must represent some deeply lying principle of inheritance.

The results are even more remarkable when, instead of limiting the case to a single pair of characters, two or more pairs are taken together. It is then found, in typical cases, that each pair of characters follows the Mendelian rule quite independently of the characters with which it is associated. But when the combinations of the two (or more) pairs are considered together they are found to fall into definite series, which rapidly increase in complexity as the number of characters rises, but follow a simple and definite principle. At this point these more complex combinations need not be considered. The point on which I would fix attention is that the principle of combination is such that when the hereditary composition of the parents is known in respect to one, two or any number of pairs of characters, both the qualitative and the quantitative nature of their offspring may be predicted, often with astonishing accuracy. It has thus, in fact, become possible to write down hereditary formulas for animals and plants that exhibit this form of heredity, which will express both their ancestry and their hereditary capacity. These formulas bear a curious resemblance to those of organic chemistry in that they have enabled the experimenter to predict the formation of new combinations not previously known, and then to create them by a suitable synthesis. Further, just as the chemist can in some measure predict the properties of his new compounds, so the biologic experimenter can in a measure predict the hereditary behavior of the new combinations thus called into existence.

CUÉNOT'S EXPERIMENTS.

I will again illustrate this by color inheritance in mice, describing a case which the French observer Cuénot first worked out on paper and afterward put to the test of actual experiment. The colors of mice are typical Mendelian "unit characters," so related that when two colors are united in a hybrid yellow dominates gray or black, gray dominates black, while any of these colors dominates the corresponding albino, or white character. The nature of Cuénot's experiment is shown in Table 1. A first cross was made between two white mice, one an albino of gray extraction (AG), the other an albino of black extraction (AB). The result is a white mouse of combined gray and black extraction (AGAB). Parallel to this, a cross was made between a pure black mouse (CB) and a white mouse of yellow extraction (AY), the result of which is a yellow mouse that has both black and white in its ancestry (CBAY). From a knowledge of the hereditary constitution of the two mice AGAB and CBAY Cuénot predicted that they would produce eight different kinds of offspring, of which in the long run four should be white, two yellow, one black and one gray. Crosses of this type were then repeatedly performed until 151 mice of the third generation had been obtained. The actual distribution of the colors is shown in one column (Table 1), the theoretic expectation in the other, and, although the correspondence is not mathematically exact, it is so close as to leave no doubt of the correctness of the reasoning on which the prediction was based. The experiment might have been indefinitely continued by crossing any two of the eight kinds of mice thus obtained, and in each case a close prediction could have been made of the result. This is by no means an isolated case, but only a single example of a type of experiment that has been repeatedly performed, both in animals and in plants, with quite as striking a correspondence between theoretic expectation and reality. In general, the larger the number of cases observed the closer does this correspondence become.

TABLE 1.—HEREDITY OF COLOR IN MICE. (Cuénot.)

			(Calculated.)	(Observed.)
Grand parents... (1st generation)	A G (white) A B (white)	C B (black) A Y (yellow)		
Parents.....	A G A B (white)	C B A Y (yellow)		
(2d generation)				
Offspring. (3d. generation.)	1. A G C B	(gray)	19	16
	2. A B C B	(black)	19	20
	3. A G A Y	(white)	76	81
	4. A G A B			
	5. A B A Y			
	6. A B A B			
	7. C Y A G	(yellow)	38	34
	8. C Y A B			
			152	151

Mendel's law or principle gives an extremely simple and lucid explanation of the seeming necromancy that is practiced in such predictions. This principle is simply that when a given pair of opposing or alternative characters (i. e., such as behave toward each other as dominant and recessive) are put together in a hybrid they are, in some sense, disjoined or separated in the eggs or spermatozoa of the hybrid, and in such a manner that half the germ cells in each sex contain the dominant character and half the recessive. In other words, the germ cells of the hybrid are no longer hybrid, but are pure like the parental forms. If now it be assumed that fertilization is quite fortuitous—that is, that the spermatozoon that fertilizes any particular egg is as likely to bear one character as the other—the observed facts follow as a simple matter of probability, and the explanation of the simple ratio shown by a single pair of characters carries with it that of the more complex series shown by the combination of two or more pairs of characters. To illustrate again by the mice: The gray and white cross produces the hybrid GW, which appears gray because of the dominance of gray over white. The eggs and spermatozoa of the hybrids are, however, not GW, but either G or W in equal numbers. If now the spermatozoa fertilize the eggs at random the probability is that the following combinations will appear in equal numbers: GG, GW, WG and WW or GG + 2GW + WW, as shown in Table 2. The first produces a pure gray mouse, the second and third, hybrid gray mice, and the fourth a pure white mouse, that is, three gray to one white. The correctness of this interpretation is proved by crossing the gray hybrids (GW) with the pure white forms (WW). Whether the gray female be paired with the white male or the reverse, the result should be to give gray hybrids (GW) and pure whites (WW) in equal numbers. For the germ cells of the gray hybrid are gray

and white in equal numbers, while those of the whites are white only. The chances, therefore, are equal in favor of W meeting W or G, as shown in Table 3. This expectation is closely met by the facts. It is simply by the application of this essential principle—disjunction of the members of each pair of characters and the resulting "purity" of the germ cells—to the combinations of two or more pairs of characters that the experimenter is enabled to make his apparently marvelous predictions regarding the quality and quantity of the offspring. As has just been shown, the combination of one pair of characters gives four combinations that form a series of three terms (since the second and third combinations are identical). If two pairs of characters (which may be called Aa and Bb, the capital letter denoting in each case the dominant character) be taken together, their combinations will appear in a series formed by the simple arithmetical combination of the two series formed by each pair alone. That is, if each term of the simple series AA + 2Aa + aa be combined with each term of the series BB + 2Bb + bb the result is sixteen combinations, which (owing to the identity of certain ones) fall into a series of nine terms of the form ABAB + AbAb + aBaB + abab + 2ABAb + 2aBab + 2ABab + 2Abab + 4ABab. Some of these combinations are not externally distinguishable by the eye, but must be tested by the nature of their offspring. For example, ABAB is not visibly different from ABab, since both show only the dominant characters, A and B; but they differ in hereditary capacity, since one can transmit only the two dominants, while the other may transmit also the two recessives, a and b. This difference is readily tested by breeding experiments. Inspection of the nine-term series will show that out of the sixteen combinations nine show both the dominant characters, A and B; three, one dominant and one recessive, A and b; three, the other dominant and recessive, a and B, and one, both recessives, a and b. Experiment shows that the four characters actually appear in combinations that closely approximate to the series thus worked out as a purely arithmetical construction. With three pairs of characters the nine-term series expands to one of twenty-seven terms, with four pairs to eighty-one terms, and so on. It is not necessary to follow all this out in further detail. It is sufficient to say that, given an experimental acquaintance with the relations of dominance and recessiveness between the characters, the predictions of the experimenter become a simple matter of mathematical computation.

TABLE 2.

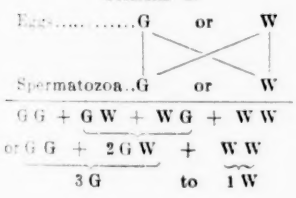
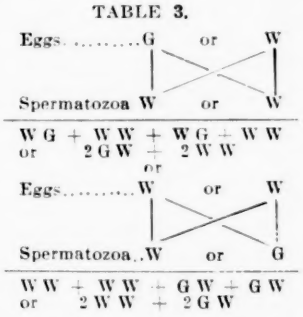


TABLE 3.



Such is the Mendelian principle stated in its simplest form and as it was conceived by Mendel himself. It has now become evident that, as applied to certain cases (among which is included color inheritance in mice, as will appear beyond) Mendel's own statement was probably too simple, and, further, that many exceptions and modifications occur. I will return to this further on; but for a presentation of the cytologic aspects of the problem it will be convenient to confine ourselves at the start to the simplest form of statement.

THE GERM CELL AND HEREDITY.

We may now turn to investigations on the structure and behavior of the cell that have revealed a mechanism that may be adequate for the physical explanation of the main facts of Mendelian heredity. It has now become the prevailing view (though it is not universally admitted) that the primary factors of heredity—I do not say the only ones—are contained in the nuclei of the germ cells; and on this assumption we shall proceed without reviewing the great array of evidence on which it rests. In approaching this subject we may again recall the fact that the unit characters behave in Mendelian inheritance almost as if they were material bodies that may be put together, separated and recombined in definite proportions. This remarkable fact would be intelligible if the material bases of the characters in the germ cells were separate substances or bodies that underwent corresponding combinations, dissociations and recombinations. The cytologist has good reason, therefore, to seek in the egg, or spermatozoon, and particularly in the nuclei of these cells, for discrete bodies that may serve as such bases of the characters.

THE CHROMOSOMES AND "UNIT CHARACTERS."

Whether this search has been successful or not is still a matter of opinion; but it is not a matter of opinion, but of fact, that the nuclei of the germ cells do contain or give rise to bodies, the history of which in the life cycle of the organism shows the closest parallel to that of the unit characters—so close that we can, in fact, apply to these bodies the same formulas by which the characters are designated and reach the same result. These are the bodies known to every histologist as the chromosomes—rod-shaped or loop-shaped bodies that are visible in the nuclei of the egg and spermatozoon at the time of fertilization and at the time of cell division in every cell derived from the fertilized egg. The chromosomes are constant in number in each species. At the first division of the egg, and at each subsequent division each of them divides into two, the daughter chromosomes thus formed separating and passing one into each of the daughter cells. The chromosomes are thus handed on by division from cell to cell throughout development, always retaining their specific character; and hence we are justified in the conclusion that the chromosomes of every cell throughout the whole life cycle may be regarded as the lineal representatives, if not the actual descendants, of those present in the original fertilized egg.

Let us now briefly consider some of the characteristics of these bodies. It was formerly supposed that the chromosomes in a given species were all alike, both in structure and in physiologic quality; but we are now able to say definitely that this view was erroneous, at least in some measure. In many species the chromosomes show constant differences of size, so that certain ones may be recognized by the eye in many successive generations of cells. With these individual differences of size are correlated, in some cases, characteristic differences of individual behavior at certain periods of the life cycle. It has been shown experimentally that when false combinations of chromosomes are artificially produced (for instance, by double fertilizing of the egg) false forms of development take place in the offspring of these cells. These and similar facts have led to the conclusion that different chromosomes of the same nucleus possess different physi-

ologic characters, playing different rôles in the metabolism of the cell and hence in development. It is but a step from this result to the conclusion that the primary factors of heredity (which, as we have seen, are believed to have their seat in the nucleus) are in some fashion distributed among the chromosomes. It must be admitted that we have as yet but little direct and specific evidence that such is actually the case. The principal argument is part of a more general one that the basis of heredity is contained in the nucleus, and that the chromosomes form the most essential part of the nuclear substance.

THE RELATION OF SEX TO THE CHROMOSOMES.

But there is one interesting fact that bears directly on this question. It has recently been found that in some of the insects there is a particular chromosome (known as the "odd" or "accessory" chromosome), distinguishable from the others by its size and mode of behavior, that is in some way related to the character of sex; for all the other chromosomes are paired in both sexes, while this particular one is single in the male, but in the female is accompanied by another similar chromosome. The precise nature of the connection between this chromosome, or pair of chromosomes, and the sexual characters is not yet known, but it is difficult to escape the conclusion that it has to do in some way with the transmission and development of those characters. If this be correct, we have a definite basis for the assumption, by analogy, that other chromosomes are concerned with the transmission and development of other characters.[1]

COMPOSITION OF THE CHROMOSOME GROUPS.

We may now examine the general composition of the chromosome groups more in detail. One of the most striking discoveries of cytology is the fact that every nucleus contains a double series of chromosomes; that is, two series of chromosomes in duplicate. The fact has already been referred to that the chromosomes often show constant size differences. In all cases in which these differences are clearly marked it may be seen that there are always two of a kind, so that the chromosomes may be paired off two by two according to their size; in other words, if the chromosomes be arranged in the order of their size it is found that they fall into two similar series, the members of which correspond each to each. This fact has not as yet been shown clearly in the cells of higher animals, but it appears unmistakably in the cells of certain lower ones, such as the insects. Nevertheless, there is strong reason to believe that, even when the fact is not evident to the eye, the chromosomes of all cells, with certain special exceptions that only emphasize the rule, form two such duplicate series. The confidence with which we may draw this conclusion rests on the manner in which the two series are known to be produced.

Both observation and experiment have shown with great clearness that the explanation of the double series of chromosomes lies in the fact that they are descendants or representatives of two series that are originally brought together in the fertilization of the egg. Now these two original series are derived from the nucleus of the egg and of the spermatozoon, respectively, and hence are ultimately of maternal and paternal origin. Since every chromosome divides into two at the first division of the egg, and at every subsequent division, the two daughter chromosomes in every case passing, respectively, to the two daughter cells, it follows that the chromosomes of all the cell nuclei are of maternal and paternal descent in equal numbers.

This conclusion, first reached by pure observation, has received a most convincing confirmation by means of experiment. For example, Moenkhaus was able to effect a cross between two species of fishes, *Fundulus* and *Menidia*, that agree in the number of chromosomes (approximately 36), but differ markedly in respect to their size, the chromosomes of *Fundulus* being nearly three times the size of those of *Menidia*. The resulting hybrids were reared up to a well-advanced stage of development (though not to the adult condition), and at every stage the two forms of chromosomes could be recognized—half (18) of the *Fundulus* type and half of the *Menidia* type—and with such clearness that the difference was distinctly shown in photographs. Similar results have been obtained in a few other cases, though none are as striking as the one described.

It may, therefore, be taken as at least highly probable, if not fully established, that every nucleus of an organism of sexual origin is a dual one and contains representatives of the original maternal and paternal chromosomes in equal numbers. It is evident that we may have here a general basis for the facts of dual inheritance from the two parents. But our conclusion may be pushed much further than this. The pairing of the chromosomes according to their size can apparently mean nothing else than that one member of each pair is a maternal representative, the other a paternal; that is, that every chromosome derived from the egg is accompanied by a corresponding or duplicate one derived from the spermatozoon. If, then, we have any right to assume that the chromosomes differ specifically in their relation to heredity, if we may assume that each chromosome stands in some way for a particular character or group of characters, then the further assumption seems justified that each such character or group of characters has a double basis or determinant, one derived from each of the parents. On the basis of these assumptions may be worked out at least a partial explanation of Mendelian inheritance, as was first shown by Sutton and Boveri.

RELATION OF THE MENDELIAN PRINCIPLE TO CHROMOSOME CHARACTERISTICS.

Let us consider the case of an organism having eight chromosomes. In the fertilization of the egg half these chromosomes, which may be designated as A, B, C and D, are derived from the nucleus of the egg, while the spermatozoon supplies four corresponding ones that may be designated as a, b, c and d. The fertilized egg accordingly contains the double series A, B, C, D, a, b, c and d. Since at every division of the egg and its descendants each of these chromosomes also divides, all the cells derived from the egg contain a double series identical with that present in the original fertilized egg; and, as in the egg, they form four pairs, A and a, B and b, C and c, D and d, each consisting of a maternal and a paternal member. This mode of development continues throughout the whole life of the organism up to a period that shortly precedes the final ripening of the germ cells that are to produce a new generation. At the beginning of this period, known as the maturation period, a process, known as synapsis, takes place, in the course of which the chromosomes unite two by two, coupling or pairing so as to form double chromosomes, known as bivalents. As a result of this process the double series of single

1. It has been shown that the odd chromosome is present in one-half of the spermatozoa and lacking in the other half, and the facts seem to leave no escape from the conclusion that spermatozoa in which it is present produce females, those in which it is lacking, males.

chromosomes present before synapsis gives place to a series of double chromosomes or bivalents, the number of which is, of course, one-half the original number of single chromosomes. The remarkable feature of the synapsis is that it is effected by a coupling or pairing of chromosomes that correspond in size, and for the reasons already given this must mean that synapsis involves the coupling of corresponding paternal and maternal chromosomes (as was first pointed out by the American cytologist Montgomery). Reverting to our graphic formulas, in synapsis the eight chromosomes, A, B, C, D, a, b, c, d, couple to form the four bivalents, A-a, B-b, C-c and D-d. Before synapsis takes place the paternal and maternal chromosomes show no regular or constant relation to one another in the nucleus. After synapsis an orderly regrouping has taken place, each chromosome of maternal descent having paired with its mate or fellow of paternal descent. This process is followed by a long period of growth, in both sexes, in the course of which the germ cells prepare for the final act of their maturation. This consists of two rapidly succeeding cell divisions, which in the female lead to the formation of two polar bodies and in the male to the production of four spermatozoa. In one of these divisions, known as the reduction division, each bivalent separates into its two constituent chromosomes, one of which passes to each of the daughter cells. It thus comes to pass (and this is the essential point) that after the reduction-division has occurred, half the resulting cells contain one member of each original pair and half contain the other member. This disjunction of each member of a pair from its mate or fellow evidently forms an exact parallel to the disjunction of each dominant character from the corresponding recessive in Mendelian heredity.

It is further clear that, owing to the reduction-division, each of the germ cells receives only a single series of chromosomes and hence only half the original number. The particular combination of chromosomes in the reduced series will depend on the manner in which the bivalents divide with respect to one another. If they are all placed in the same position (as in Table 4), the result will be to divide the double series into the original paternal and maternal ones, A, B, C, D, and a, b, c, d. The cytologic facts do not in themselves give any direct evidence on this point; but we are led by the facts of inheritance to assume that such a mode of division is unusual, though it may take place. It is assumed, rather, that each bivalent divides independently of the others, as shown in Table 5, so that any combination of the original paternal and maternal chromosomes may be produced, so long as the complete series A or (a) to D or (d) is maintained; for example, A, b, C, d; a, B, C, d; a, b, C, d; A, b, c, d; a, b, c, d and so on. It is evident that the chance combinations of four chromosomes will be the same as those of four characters, and similarly with a greater number.

TABLE 4.

A	B	C	D	A	B	C	D
a	b	c	d	a	b	c	d

TABLE 5.

A	b	C	d	A	b	C	d
a	B	c	D	a	B	c	D
a	b	C	D	a	b	C	D
A	B	c	d	A	B	c	d

Now, it is too evident to need explanation that all this runs parallel in the most exact and detailed way to the behavior of the unit characters in Mendelian heredity. Just as two corresponding characters (such as two colors) of maternal and paternal origin are associated in a hybrid, and as they are disjoined in the formation of the germ cells, so two corresponding chromosomes of maternal and paternal origin, respectively, are associated in the offspring and are disjoined in the reduction-division, so that half of the germ cells receive one and half the other. And, again, just as each pair of characters is independent of the others, appearing in all possible combinations with them, so we may assume that each pair of chromosomes divides without reference to the others, and all possible combinations of them (within the limits of the series) appear in the germ cells, following the same law of combination as the characters. If we consider a single pair of chromosomes, A and a, half the germ cells in each sex receive A and half a. Fertilization, according to the law of chances, gives the combinations AA, Aa, aA and aa in equal numbers, which equals AA + 2Aa + aa, or three fertilized eggs containing A (pure or combined with a) to one that contains a only. This is, of course, the Mendelian ratio and equally well expresses the behavior of the gray and white characters in mice if instead of A and a we write G and W. It is self-evident that the combinations of two or more pairs of chromosomes will be identical with those of two or more pairs of characters, giving with two pairs a series of nine terms, with three pairs twenty-seven terms, with four pairs eighty-one terms, and so on.

We have, therefore, only to assume that in heredity corresponding chromosomes stand for or are the physical bases of corresponding characters to find a fundamental explanation of Mendelian inheritance; and one that is so simple and lucid as to make a singularly strong appeal to our credence.

Had we no other evidence than the fact of the parallelism between the behavior of the chromosomes and that of the unit characters we should be justified in setting up the working hypothesis that the chromosomes play a leading rôle in heredity; but in point of fact there is a great body of independent evidence pointing toward the same conclusion, as I have already indicated. Nevertheless, we should clearly recognize that the interpretation can not as yet lay claim to be taken as a demonstrated theory. It is still a working hypothesis only and one whose elements differ considerably in degree of validity. The union of two similar series of chromosomes, maternal and paternal, in the fertilization of the egg, is thoroughly established. It may be taken as highly probable that the double series of chromosomes present in the cells of later stages are lineal representatives of the two original series —whether their actual descendants can not be so positively asserted. The pairing of the corresponding chromosomes in synapsis and their subsequent disjunction in the reduction division seems to be well established in certain cases; but whether that is always so is an open question that is now undergoing close scrutiny by cytologists. The fundamental assumption that corresponding chromosomes bear, or stand for, corresponding characters is still a pure hypothesis, though one in favor of which a strong argument can be made independently of the facts of Mendelian heredity.

Space will not allow of a more critical examination of these cytologic questions. I will only refer briefly to the interpretation that the chromosome hypothesis has to offer of certain exceptional or difficult cases, including non-Mendelian heredity. The most familiar of these

phenomena is that of blended inheritance, such as the cross between the negro and the white man, which produces a yellow or brown type of uniform color which does not break up in the succeeding generation into black and white. It is possible that in such cases the chromosomes that couple in synapsis completely fuse to form true hybrid chromosomes. It is equally possible that without actually fusing in synapsis they become so long and intimately associated as to undergo mutual modification of their substance that brings about the same result.

Many cases have recently been brought to light of partial or imperfect dominance; in poultry, for instance, as has been shown by English and American experimenters, white plumage usually dominates over colored, yet the hybrids often show more or less of an admixture of the colored type; and a similar result has been reached in the case of crosses between crested and non-crested fowls. When such partial or diminished dominance occurs in the first hybrids it is easily explained by the supposition that one chromosome does not completely inhibit the activity of the other. To explain the results in later generations this will not suffice, and we must assume, as in the case of true blended inheritance, that, either during synapsis or during the long period of association that precedes, the chromosomes permanently affect one another so as no longer to be pure.

An apparent difficulty presented by the hybrid mice and by parallel phenomena in the case of hybrid sweet peas and stocks has, on further study, proved to be perfectly explicable by the Mendelian principle, and at the same time throws an interesting light on certain phenomena of reversion and atavism. In case of the mice, albinos that have been mixed with colored forms and again "extracted" may have acquired the power to transmit that color to their descendants when crossed with mice of certain other colors; yet under the original Mendelian assumption they should be pure. Cuénot has ingeniously explained this by the hypothesis that the production of color requires two factors, which we may call the "color producer" (C) and the "color determiner" (G, B, Y, etc). The colored gray mouse contains both these factors (C G), the corresponding albino contains the grey determiner (G), but the color producer is absent (hence A G). If these two factors be assumed to couple and disjoin, like any other pair of Mendelian characters, the behavior of the albino mice is explained by Mendel's principle. Thus, the appearance of gray depends on the presence of both the color determiner (G) and a color producer (C). The gray mouse possesses both these factors (C G). A mouse in which G is present but C absent (A G) is white or albino, but if such a white mouse be crossed with a black mouse (C B) the offspring will be gray (A G C B), thus "reverting" to a gray ancestor, because the introduction of the factor C enables the color to develop, but gray alone appears because this color is dominant to black. Here the hybrid mice appear to "revert" to a gray ancestor, from which the albino was descended. That this explanation is correct in principle is proved by the accuracy of the predictions that it renders possible, as in the more complex example heretofore considered. A similar explanation is applied by Bateson to explain the behavior of certain white varieties of sweet peas and stocks, which breed true so long as each variety is paired with itself only, but immediately produce purple flowers when the two white varieties are crossed. Each of the white varieties is assumed to possess but one of the two-color factors, hence no color develops. Their union by crossing brings the two necessary factors together and the color at once appears. In this case, too, there is reason to believe that the wild ancestral form was colored. The white varieties represent forms in which one or other of the color factors has been lost. When the two are again united by crossing the hybrids "revert" to the ancestral type, i. e., exhibit a form of atavism. It should be pointed out, however, that this ingenious and plausible hypothesis seems to fail as applied to piebald or spotted forms, for which only a partial explanation has thus far been found.

I will only mention one other departure from the typical Mendelian phenomenon for which the chromosome theory may give a physical explanation. It is not uncommon to find that the combinations of two or more characters do not follow the simple arithmetical series expected on the law of equal chances, certain combinations being in excess and others correspondingly deficient. This is clearly due to a tendency, more or less definite in different cases, for certain characters to "couple" or accompany each other—either constantly or in a marked majority of cases. In sweet peas, for example, Bateson has shown that there is a marked tendency for round pollen grains to be coupled with red flowers and long pollen grains with purple. In some of the moths, again, in some kinds of crosses certain of the characters of one parent always or usually appear in the male, others in the female; that is, there is a coupling, complete or incomplete, of these characters with the sexual characters. A close parallel to these phenomena has been found in a corresponding coupling of the chromosomes, which tend to cohere in a definite way that can actually be followed out under the microscope. We do not yet know whether such chromosome coupling is really the explanation of the character coupling, for the two phenomena have not yet been worked out in connection with each other in the same species. But no one can deny that the one phenomenon seems well calculated to explain the other, and we may here possibly be able to find a decisive test of the whole chromosome theory.

Time will not admit of our following out these problems more in detail. I would not give the impression that they have been completely solved. For some of these problems not even an approximate explanation has been found. But I hope I have been able to show that the cytologic study of heredity is not a vague search after intangible and obscure things, but is engaged with clearly marked, definite phenomena that can be as accurately studied as the phenomena of heredity, to which they run so closely parallel. We should not make too ambitious a claim for the results already attained. It is possible that we are on a wrong track and are dealing with only a complex and detailed coincidence. I repeat that we are not dealing with a fully grounded or well established theory, but only with a working hypothesis. But even so regarded, it is one of the most interesting and suggestive attempts to solve a complex and difficult problem that modern biology can show, and as such it merits, I believe, the most attentive further examination.

THE BEARING OF CYTOLOGIC STUDY ON OTHER SUBJECTS.

It may be asked in what way the conclusions I have endeavored to outline may offer specific suggestion to the physiologist, the pathologist or the physician. I fear no very satisfactory reply can as yet be given. Still, it may not be amiss to say that if there be any considerable measure of truth in the conclusions I have indicated, the day has gone by when the physiologist could allow himself to consider the relation between nucleus and cell

body as the simple reaction of two simple cell organs. He must squarely face the probability that the nucleus is itself a complex organism, as he must also admit that the cell body consists not of one protoplasm but of many protoplasms. Cytologists are laboriously endeavoring to ascertain in what measure the chromosomes are qualitatively different in respect to the processes of growth and differentiation. If such qualitative differences are definitely proved to exist, a new and great field will be opened in cellular physiology and pathology. Already attempts have been made to bring the facts of tumor formation and the like into relation with disturbances in the chromosome groups. I have stated that false combinations of chromosomes have been experimentally shown to lead to false forms of development. So far as I am aware, attempts to find a similar explanation of perverted growths in the body have thus far been without positive results, though some interesting suggestions in this direction have been offered. But it should not be forgotten that in nuclei which show little or no visible differentiation of the chromosomes profound changes might take place without giving visible sign of their presence. Such changes might be immediately induced by any one of many conceivable causes— by parasites, perverted forms of metabolism, the presence of specific forms of toxins and so on—and having once arisen might persist for an indefinite number of cell generations long after the initial exciting cause had passed away. It is still an open question whether the cell is able to regulate the character of the chromosome groups after disturbance, but on the whole such evidence as we have lies on the negative side of the question. Certainly there is nothing more surprising than the stubbornness with which abnormalities in the chromosome groups, when once they have arisen, are perpetuated generation after generation, so long as they do not lead to multipolar division. Such an abnormality, once arisen, even in a single epithelial cell, might therefore lead to an extensive pathologic growth of definite histologic character, in which we might seek in vain for a visible causative agent. I fear, however, that cytology is not yet in a position to bring much help to the pathologist, for we are still too ignorant of the mechanism of normal differentiation to have much to say about that of abnormal forms. It is my impression that this problem can not at present be successfully attacked in the case of the higher animals and that we must for a time be content to rely on the study of much lower ones, such as the insects, where for some unexplained reason the differentiation of the chromosomes is far more clearly shown.

In conclusion, I wish to repeat that, whether we are on the right track or not in these cytologic studies, they stand on a perfectly concrete, definite and intelligible basis and can be put to the test of observation and experiment. The facts of heredity have always stood among the most wonderful and apparently mysterious phenomena of organic nature. It is no wonder if they long seemed inexplicable and if some naturalists have regarded, perhaps still regard, the hope of discovering their mechanism in detail as chimerical. To-day, I believe, this attitude can only be taken by those who have not closely followed the remarkable lines of inquiry that I have endeavored to sketch.

Naming of Carbon Compounds.—Thiol: Thi + ol is a sulphur alcohol. These are compounds in which the oxygen of the alcohol group is replaced by sulphur, thus ethane thiol is $CH_3.CH_2.SH$.—*Pharm. Rev.*, September, 1906.

Original Articles

BACTERIOLOGY OF THE RESPIRATORY TRACT,

WITH ESPECIAL REFERENCE TO INFLUENZA BACILLI.*

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INTRODUCTION.

These studies were carried on with a view of determining the frequency of occurrence of influenza-like bacteria in the sputa and throats of persons afflicted with the various infectious diseases, and also of comparing such bacilli for the purpose of determining possible variations which might lead to a subdivision of the influenza group. In a previous paper[1] on the bacteriology of whooping cough I discussed the occurrence of these bacilli in this disease and also gave some data on their occurrence in other infections. Here I shall refer to some of these results and add to them further data on certain properties of these bacilli.

TECHNIC.

The technic used in examining the respiratory tract for bacteria was briefly as follows: In nearly all of the cases sputum was obtained in a sterile Petri dish, and as soon as possible brought to the laboratory and examined. In some cases it was impossible to obtain the sputum and throat swabs were used. The sputum, as a rule, was washed in several changes of sterile water or broth, and from this washed sputum smears were made, and also a small particle was shaken thoroughly in a tube of plain broth for plating. The washing was for the purpose of removing the ever-present saprophytes coming from the oral cavity as the sputum is expectorated. Inoculations were then made from the tube of plain broth into melted plain agar at a temperature of 40 to 42 C., to which about 5 drops of pigeon blood had been added, and this was plated in the usual manner. Pigeon blood was used because it was found that, as a rule, the influenza organisms grow better on this than on other bloods, a fact first noted by Pfeiffer.

WHOOPING COUGH.

In sixty-eight cases of whooping cough, influenza-like bacilli were isolated sixty-one times. In the remaining seven cases they were not found after several examinations. Usually they were found in the first examination, this being true in forty-eight of the sixty-eight cases. In two cases the organisms were found several days before the whoop occurred, but at this time the patients had a severe cough and expectorated much mucus. Examination in six cases during the early stages before the whoops began failed to reveal the organisms. Later when the spasms appeared the bacilli were found. They may remain in the throat for a considerable period of time even after the spasms disappear. During the paroxysms they are coughed into the surrounding air in large numbers, as may be shown by holding blood agar plates before the child while coughing. In some cases the bacilli are extremely numerous, and on the plates are in almost pure culture, while in other cases they are relatively few in the cultures. In those negative cases, where opportunity was offered, persistent search both by smear and culture failed to reveal the organism. In one of these cases the *Micrococcus*

* From the Memorial Institute for Infectious Diseases, Chicago.
1. Jour. of Infect. Dis., 1906, iii, 1.

catarrhalis was found in nearly pure culture; in several others streptococci were especially numerous.

It is sometimes true that in the early spasmodic stage the influenza-like bacilli can not be found, and later they may appear suddenly in large numbers. In two cases this fact was especially conspicuous. Both were in the third week of the disease and had very violent spasms of coughing with typical whoops. Several examinations of sputum at intervals of two or three days both by smear and culture failed to show any of the bacilli, but many streptococci. Suddenly the bacilli appeared in the sputum in large numbers and thus continued.

Smears made from the washed sputum and stained by Gram's method with counterstain of dilute carbol-fuchsin show, as a rule, a large number of the small non-Gram-staining influenza-like bacilli. This is not an absolutely reliable means of detecting them; one may become very suspicious of their presence by smear examination, but further confirmation should be made by means of culture.

Pneumococci were found in every specimen and were about in the same proportion as in normal throats. Under this term are included those colonies which appear in the plates with a greenish halo about them. Streptococci were found in nearly every specimen of sputum examined. In a number of cases this group of organisms was very abundant and even more numerous than those of the pneumococcus group. As a rule, they were few, not more than three or four colonies on a plate. Compared with the normal, this class of organisms was somewhat more prevalent. The *Micrococcus catarrhalis* was found in large numbers in some of the cases, and organisms belonging to the diphtheria group were found in eight instances. Several strains were given to Miss Hamilton, for identification, who found some of them to be true diphtheria bacilli and other strains to be pseudo forms; they were never found in large numbers. In one case a child had a typical case of whooping cough with no evidence of diphtheria. A swab obtained from the throat showed numerous influenza organisms, but no diphtheria bacilli in smear or blood agar plates. Five days later the patient appeared with a well-developed membrane showing on examination many typical diphtheria bacilli together with some influenza bacilli.

MEASLES.

Twenty-three cases of measles were examined, in nearly all of which sputum was obtained for this purpose. They were examined during the stage of eruption and had, as a rule, the cough so frequently present early in this disease. In thirteen of these cases the influenza bacilli were isolated; in four they were the predominating organism, being found in almost pure culture in washed sputum. In some of the other cases they were very few. Pneumococci were always present and about to the same extent as found in normal throats. Streptococci were numerous in a few cases, but, as a rule, much less so than pneumococci. The *Micrococcus catarrhalis* was found in ten cases; in two of these it was very abundant, being more numerous than any other organism present. Influenza bacilli were not present in these two cases. Typical diphtheria bacilli whose colonies possessed wide hemolytic zones were obtained in two cases; they were not numerous. Five of the cases were complicated with otitis media. In one of these cases only were influenza bacilli found in the discharge; they were present in very large numbers and in nearly pure culture, a few streptococcus colonies appearing with them. About ten days previous to this, examination of the sputum showed the presence of influenza bacilli in considerable numbers. Another examination of the ear discharge was made eleven days later. At this time the influenza bacilli were no longer present, but there was obtained, in almost pure culture, a diphtheria-like organism. In a second case a double otitis media developed, and in culture from the ear discharge were found numerous streptococci, a few diphtheria bacilli, a few staphylococci and also a few typical pneumococci which fermented inulin and gave a green colony on blood agar. From the other three cases of otitis media streptococci were obtained pure in one of them, and diphtheria bacilli mixed in the remaining two. One of the cases of measles during convalescence had a profuse nasal discharge. Cultures of this material showed pneumococci, streptococci, a few diphtheria bacilli and also influenza-like bacilli. About a week later there developed a pus infection of the upper lip extending into the left cheek. Both smears and cultures from the pus showed a pure growth of *Staphylococcus pyogenes aureus*.

These results show the large number of varieties of bacteria that may be found in such cases. Streptococci seem to be the most frequent invaders, but the lesions can not be attributed to any one specific organism. The tissues appear to be so non-resistant that any variety that may happen to be present in the upper respiratory passages may find therein a suitable place for growth.

VARICELLA.

Eleven cases of varicella in young children were examined. Some of them were in the early stages, others later in the disease. Practically all had a slight cough. Influenza-like organisms were isolated in seven of the eleven cases; in two they were very numerous. Streptococci, few in number, were found in eight, diphtheria bacilli in one, and *Micrococcus catarrhalis* in all. These latter organisms were very numerous in two cases in which influenza bacilli were absent. The greenish pneumococcus colonies were found in all cases and about to the same extent as in normal throats.

MENINGITIS.

Opportunity was afforded to examine three cases of epidemic meningitis in children. In the nose in one case was found an influenza-like bacillus. Meningococci were isolated in two of the three cases from the nasal mucosa where they occurred in large numbers. All of them showed some nasal symptoms. One of these cases developed a double otitis media. Streptococci and diphtheria bacilli were isolated in culture, but no meningococci. This case, early in the disease, had a purulent conjunctivitis from which a typical meningococcus was isolated. The conjunctivitis completely disappeared in a few days on boric acid irrigation, leaving no serious result. Another case of interest may be mentioned here: A child 8 years old came into the hospital with the diagnosis of meningitis. She was in coma; the temperature ranged from 102 to 104 F.; marked rigidity was present not only of the muscles of the neck and back, but also of the limbs and especially of the jaw. Spinal puncture was made with negative results. Swabs from the nose showed nearly pure culture of diphtheria bacilli and a few were obtained from a throat swab. Antitoxin was administered. In thirty-six hours the temperature was normal, and the child made a rapid recovery. During convalescence otitis media developed, and in the discharge were isolated numerous diphtheria bacilli and

streptococci. This case illustrates the importance of nose and throat examination in infections generally.

INFLUENZA BACILLI IN OTHER INFECTIONS.

In order to show the prevalence of influenza bacilli, some data will be given on the occurrence of influenza bacilli in adults in other infections. In twelve cases of bronchitis they were found in the sputum five times; in seventeen cases of typical clinical influenza the bacilli were only found three times. In twenty normal throats of adults they were found twice, but not in large numbers.

From the above data we conclude the organisms of the influenza type are very commonly found in the throat in various infectious diseases. In whooping cough they are found in nearly every case some time during the course; often as soon as the whoop begins or slightly before and again not until some time after the spasms occur. In measles they occur very commonly and early in the disease, that is, within the first three or four days. There also generally appears to be an increase in the number of streptococci in both these diseases over that in the normal. Otitis media complicating infectious diseases is due to a variety of organisms, of which the influenza bacilli may be one, but organisms of the streptococcus and diphtheria group are more frequently responsible. Some of the latter organisms are true diphtheria, others appear to be pseudo forms (Hamilton).

The *Micrococcus catarrhalis* is an organism whose significance is rather difficult to interpret. It is a non-Gram-staining diplococcus, practically indistinguishable from the meningococcus in its morphology, but differs essentially in cultural and other properties. It is not uncommon to find organisms of this kind in the normal throat and nose, but, while sometimes quite abundant, they are seldom the predominating organism. In whooping cough they are commonly found in the sputum, though it must be said it is very rare to find them as the predominating organism. In measles and varicella they are even more common and occasionally are found in large numbers and to the exclusion largely of other organisms. It appears probable that they are increased in all infections of the respiratory passages, but it is difficult to say just how much they have to do in producing the symptoms. That they may play a part in some cases can hardly be questioned, and in support of this a few cases will be cited in which this organism occurred in almost pure culture.

A young man entered the hospital with marked bronchitis and laryngitis, accompanied with almost complete loss of voice. He expectorated considerable mucus, and this material washed in sterile water gave an almost pure culture of *Micrococcus catarrhalis;* smears of the sputum showed the same organism. This condition turned out to be the initial bronchitis of typhoid fever. Butler reported, before the Chicago Medical Society, an epidemic occurring in young infants at the Maternity Department of the Presbyterian Hospital of Chicago, characterized by the occurrence of fever and laryngeal and bronchial symptoms. Of these cases one patient died and came to autopsy. There was a broncho-pneumonia present and a large amount of purulent mucus in the trachea and bronchi. In both smears and cultures of this material the predominating organism by far was a typical *Micrococcus catarrhalis.* In this case, however, there were also a few pneumococci and their presence makes it difficult to interpret the significance of the former organism. Many of the micrococci were inside the leucocytes, showing that they are readily susceptible to phagocytosis. Examination of the blood and other body fluids for bacteria gave negative results.

In a third case the patient had, following an ordinary cold, a persistent choking cough which continued for a number of weeks. The cough was very distressing, especially at night, and caused the patient to lose sleep. Otherwise she was well. A small amount of thick mucus was expectorated, and this chiefly in the morning on rising. Examination of this sputum washed in sterile water gave an almost pure culture of *Micrococcus catarrhalis.* The same result was obtained at two different examinations at an interval of about ten days.

M. Kirchner,[2] in 1890, observed this coccus in patients with influenza and associated it with the etiology of the disease. R. Pfeiffer cultivated this germ from the sputum in a variety of infections of the respiratory tract and gave it its present name. Ghon and H. Pfeiffer[2] found it eighty-one times in 140 cases of respiratory affections; they considered it usually saprophytic, but capable of producing at times acute or subacute lesions. It has been found by many others, especially in the respiratory tract in various infections of children, and has been associated with the cause of pertussis by Ritter and Buttermilch.

From the above data and the reports of others it appears that the *Micrococcus catarrhalis,* though frequently present as a saprophyte in the normal respiratory passages, is often associated with various kinds of inflammatory conditions in this region, especially in children. It can not be considered a specific organism for any particular characteristic group of symptoms, but appears to act as a common invader secondary to a variety of specific diseases. The possibility of its being a primary invader at times and under certain conditions seems reasonable.

The occurrence of the influenza bacilli in so few of the cases of clinical influenza or grippe is worthy of some comment. These cases were all diagnosed clinically as acute influenza and were typical in their symptomatology. The sputum was obtained early in the disease, and in almost every case the plates were characterized by the relatively large number of streptococcus colonies present. In those cases in which the influenza bacilli were found they were not present in especially large numbers. It is undoubtedly true that most of the cases reported as clinical influenza, at least in recent years, are not influenza infections at all, but are infections with other organisms, principally streptococci and pneumococci and perhaps also the *Micrococcus catarrhalis.* It appears to be true that a number of organisms can produce practically an identical clinical picture, and this has come to be known as influenza or grippe since the great epidemic of 1889-90. By many, such cases are assumed, without a bacteriologic examination, to be infections with the influenza bacillus, whereas in reality, as the above data, as well as many recent reports in the literature indicate, the cause is usually due to other organisms, the most common of which is undoubtedly the streptococcus.

The significance of the influenza bacilli found so frequently in the throat in infections of various kinds deserves some comment. These bacilli have a low degree of virulence for animals. If very large quantities are injected into the peritoneal cavities of guinea-pigs the animal dies in twelve to twenty-four hours and the

2. Ztschr. f. Hyg., 1890, ix, 528.

bacilli may be recovered from the blood. Attempts to exalt their virulence have not been very satisfactory.

Finding them occasionally in normal throats indicates the possibility that they may exist as harmless saprophytes or as organisms with a potential pathogenic function awaiting an opportunity favorable for development. That they are not always harmless saprophytes is shown by the fact that bacilli isolated from whooping cough and transplanted in the normal mucosa of the human throat will multiply abundantly and produce definite reaction. In one such experiment made by the writer on a young man whooping cough did not develop, but a slight fever lasting for a few days and some throat symptoms occurred, accompanied with the expectoration of a large amount of thick tenacious mucus in which the bacilli existed in large numbers in almost pure culture. We are, therefore, justified in attributing to them pathogenic properties for man, even though they may not be a specific primary cause of disease.

A careful comparison was made of the influenza-like bacilli from the various groups of diseases in which organisms of this type were isolated. This included whooping cough, measles, epidemic meningitis, varicella, clinical influenza, bronchitis, normal throats, and also strains isolated from conjunctivitis, scarlet fever, and tonsillitis. Morphologically and culturally no differences are found which would serve to subdivide them into groups. The organisms from these various diseases agree very closely. Strains from the same disease differ from each other slightly. Some tend to form threads very readily and are slightly larger than other strains, but this was found in all the diseases where a number of strains were isolated. Altogether about one hundred different strains have been tested. Without exception all require hemoglobin media. They are non-Gram-staining, short bacilli and stain more deeply at the ends with methylene blue. In the throat they never form threads, but in culture nearly always a few may be found, and in some strains this tendency is very marked, especially in the older cultures. We may say, then, that these bacilli agree very well with the influenza bacillus as described by Pfeiffer, and the forms showing a tendency to form threads correspond to his pseudo-influenza bacilli which he found in broncho-pneumonia and other conditions. That there is no essential difference between them seems to have been definitely determined by a number of writers, and the result given in this paper also indicate such to be true.

AGGLUTINATION OF INFLUENZA-LIKE BACILLI.

In order to show possible differences in the strains of influenza-like bacilli, rabbits were immunized against organisms isolated from whooping cough, measles, clinical influenza, scarlet fever, varicella, tonsillitis and conjunctivitis. The animals were first injected subcutaneously with the living germ and later intraperitoneally with gradually increasing doses. Finally they were injected twice with two agar slants of the living germs intravenously. The animals gradually lost weight, but otherwise showed little effects from the injections. At first they were injected once a week and later twice a week, this being continued for from eight to twelve weeks. The agglutination tests were made by the microscopic method and controlled with the microscope. This is the method of Cantani, Wollstein and others. There was some difficulty at first in getting hemogeneous suspensions of the bacilli, but by using young cultures, preferably from twelve to eighteen hours old, thoroughly agitating them in normal salt solution and then centrifuging out the clumps that may remain a satisfactory suspension was obtained for agglutination purposes. The serum was diluted with normal salt solution and the dilutions 1/10, 1/20, 1/50, 1/100, 1/200, 1/500, 1/1000, and occasionally higher were used. The serum of normal rabbits causes some clumping in all strains at a dilution of 1/10. Occasionally some strains were clumped at 1/20, but never any higher. In the immune animals agglutinins are present at the end of six weeks or earlier. In from eight to twelve weeks they are abundant. The sera in all the animals agglutinated the homologous organism at a much higher dilution than any strain isolated either from the same disease or from another disease. This was true, without exception, in every test made. All the sera agglutinated the homologous organisms in dilutions of 1/500, some at a dilution of 1/1000, and in one instance the serum from an animal immune to an organism from tonsillitis at a dilution of 1/5000. The agglutination of the other organisms varied considerably, but in most instances showed some increase above that obtained with normal serum. As a rule, this varied from 1/50 to 1/100 and occasionally rose to 1/200. Organisms from the same disease as the organism used to immunize, but from a different patient, did not appear to be agglutinated at higher dilutions than organisms isolated from other diseases. Table 1 is given as a fairly typical illustration of the agglutination of these bacilli. Tables showing the agglutination by sera immune against these bacilli from other sources show the same facts as this table and are consequently omitted. In every case, as in the table given, the agglutination of the homologous organism takes place with far higher dilutions of the serum than that of any other strain. It appears, therefore, from these results that common agglutinins are developed for all these strains of influenza-like bacilli about to the same extent and on this basis no subdivision of these bacilli into groups can be made.

TABLE 1.—AGGLUTINATION OF INFLUENZA-LIKE BACILLI BY RABBIT SERUM IMMUNIZED AGAINST A BACILLUS ISOLATED FROM PERTUSSIS.

Source of Organism.	Dilutions.							
	1/10	1/20	1/50	1/100	1/200	1/500	1/1000	Salt Solution Control.
Pertussis (homologous organism)	+++	+++	+++	++	++	++	+	0
Pertussis (not homologous)	+++	+++	+	+	0	0	0	0
Measles	+++	+++	+++	++	+	0	0	0
Conjunctivitis	+++	+++	++	++	0	0	0	0
Tonsillitis	++	++	+	+	0	0	0	0
Laryngitis	+++	+++	++	+	0	0	0	0
Varicella	+++	+++	+++	+	0	0	0	0
Influenza	++	+++	++	++	+	0	0	0

During the past season so few cases of pertussis in which these bacilli are common were available for examination that studies on the agglutinative property of the sera of patients for these influenza-like bacilli have hardly begun. This subject will be largely reserved for consideration at some future time and only a few statements made here. Normal human serum produces clumping of the strains of bacilli given in Table 1 at dilutions of 1/10 and slightly at 1/20. Practically no difference appears between the strains in this respect. In four cases of pertussis the sera clumped the bacilli from pertussis cases in slightly higher dilutions than those isolated from other sources. These dilutions

varied from 1/100 to 1/200. In one case of "grippe" in which the patient's throat showed these bacilli were very numerous, the serum fourteen days after the onset did not agglutinate the homologous strain or strains from other sources.

PHAGOCYTOSIS OF INFLUENZA BACILLI.

Within the last few years a large amount of study has been given to phagocytosis of bacteria and through animal and test-tube experiments considerable light has been thrown on the mechanism of this process. It has been shown by Wright and others that bacteria, as a rule, are taken up by leucocytes only when serum is present. Leucocytes washed several times in salt solution are no longer capable of ingesting organisms, but if serum is added to these corpuscles they promptly regain this property. The serum, therefore, is the important factor in determining phagocytosis, and the particular substance in the serum which causes it has been called "opsonin." A study of the influenza bacillus with reference to phagocytosis was made and the results will be briefly indicated.

Pfeiffer noted the occasional occurrence of these bacilli inside the leucocytes in the sputum in influenza bacilli more particularly in the latter part of the attack. In the sputum in other infections such as pertussis in which similar bacilli are found, it is only occasionally that they are encountered inside the pus cells. When the bacilli in moderate quantities are injected into the peritoneal cavity of animals they are taken up in large numbers by the numerous invading polynuclear leucocytes, but if very large amounts of bacilli are injected the exudate contains few leucocytes and the animal dies in 12 to 20 hours. The few leucocytes, however, which may be present under these conditions readily take up the bacilli.

In the test-tube, strains isolated from measles, whooping cough, tonsillitis, pharyngitis, varicella, influenza, and conjunctivitis were all found to be readily taken up by human leucocytes in defibrinated blood in the course of twenty minutes or less. If washed leucocytes are used the bacilli are also taken up, but not so rapidly as when serum is added to them. When thick suspensions of bacilli are used in from twenty to thirty minutes the leucocytes in both cases are crowded with them. If dilute suspensions are used in twenty minutes a distinct difference in phagocytic activity between the washed and unwashed leucocytes in favor of the latter is seen, but after from four to eight hours this difference disappears, the leucocytes now being usually so filled with the bacilli that their number can not be accurately determined by count.

This phagocytosis in salt solution, which may be referred to as spontaneous phagocytosis, appears at present at least somewhat exceptional, for nearly all bacteria so far tested seem to require the presence of serum for phagocytosis. However, it has been observed by Miss Tunnicliff in this laboratory that abundant phagocytosis of the *Bacillus fusiformis* occurs in salt solutions without the presence of serum, and it is also known that carmine particles are readily taken up by leucocytes in the absence of serum. Wright observed spontaneous phagocytosis of tubercle bacilli in certain concentrations of salt solution. The greatest spontaneous phagocytosis occurred in a .6 per cent. solution; this progressively decreased and practically disappeared in a 1.3 per cent. solution. Varying concentrations of salt, at least within the above limits, have no effect on phagocytosis of influenza bacilli. This is shown in Table 2. In this experiment a thin suspension of bacilli was used, otherwise phagocytosis would have been so rapid that the bacilli could not be counted in the 20-minute and 2-hour intervals.

TABLE 2.—SHOWING EFFECT OF VARYING CONCENTRATIONS OF NaCl ON PHAGOCYTOSIS OF INFLUENZA BACILLI BY NORMAL HUMAN CORPUSCLES WASHED FOUR TIMES.

Concentration of NaCl Solution.	Phagocytosis.		
	20 minutes.	2 hours.	6 hours.
.6 per cent.	.5	3.1	20+
.7 per cent.	.3	2.4	20+
.8 per cent.	.9	4.8	20+
.85 per cent.	.3	4.0	20+
.9 per cent.	.4	8.5	20+
1.0 per cent.	.1	0.9	20+
1.1 per cent.	.15	1.2	20+
1.2 per cent.	.1	8.0	20+
1.3 per cent.	.2	3.8	20+
1.4 per cent.	.3	3.9	20+

Spontaneous phagocytosis can not be satisfactorily explained by insufficient washing of the corpuscles. In some of the experiments these corpuscles were washed seven times, and each time there was added many times as much salt solution as there were corpuscles present. This amount of dilution and washing is quite sufficient to completely inhibit phagocytosis of staphylococci and meningococci. In several of the experiments staphylococci and meningococci were used as controls, and in no instance were they taken up even after eight hours.[3] Again spontaneous phagocytosis can not be explained by long-continued cultivation on artificial media. Eleven strains isolated from various sources without exception showed spontaneous phagocytosis, though some had been isolated from the throat lesions only a few days, while others had been under cultivation for five months. The possibility of explaining the large numbers of bacilli in the leucocytes after a few hours by growth having occurred inside the leucocyte from an occasional ingested bacillus was ruled out by using bacilli killed by heating to 46 C. for thirty minutes. That the bacilli do not become sensitized by growing on blood media which they require was shown by using washed corpuscles in the media and also by heating the blood to 95 C. for one hour before adding it to the media. Lastly, spontaneous phagocytosis is not the mere adhesion of the bacilli to the surface of the leucocyte, for its appearance is identical with that of phagocytosis occurring in serum, and mere adhesion of bacteria to a leucocyte is manifested by a marginal arrangement of the organisms. We are justified, therefore, I think, in considering the influenza bacillus an organism which does not require the presence of serum and which may be classed with such inert bodies as carmine particles. Opsonins, therefore, do not appear to be the only factor which control the ingestion of bodies by leucocytes. The fact should be borne in mind, however, that in the presence of serum this process of phagocytosis is accelerated.

It has been shown for a number of organisms that phagocytosis is more active in immune serum than in normal serum, and this has been explained by the increased opsonic content of the former. Experiments to determine this point were made, using the sera of rabbits immunized against various strains of influenza or-

3. In the staphylococcus suspension the leucocytes are disintegrated to such an extent in the course of a few hours by the leucocidin formed by these organisms that phagocytosis can not be determined.

ganisms. The results with six sera on eight different strains of bacilli show some variation, but it was found that frequently phagocytosis in the immune serum exceeded that in normal serum and in some cases it was marked. There was little, if any, difference between the phagocytosis of the homologous organism and other strains from the same or from some other disease.

Some factors enter into the determination, however, which make it very difficult, if not impossible, with present methods, to obtain an accurate estimation of a possible opsonic increase in the immune serum. As disturbing elements may be mentioned spontaneous phagocytosis which can not be eliminated from the determinations. Another factor to be considered is the agglutination of these bacteria by immune sera. Bacteria in clumps naturally are taken up in larger numbers than in homogeneous suspension, and consequently increase in phagocytosis in agglutinating serum does not necessarily mean increase of opsonin. These facts, together with the fact that these bacilli are extremely small, staining poorly, as a rule, and would be difficult to accurately count even under the most favorable conditions, render opsonic determination for these organisms with the present methods at least very untrustworthy.

SUMMARY AND CONCLUSIONS.

1. Influenza-like bacilli are very commonly found in the upper respiratory tract in various infectious diseases and especially in whooping cough. Occasionally they occur in normal throats.

2. Various organisms occur in the discharge in otitis media, the streptococci being the most common; occasionally influenza bacilli are found.

3. The *Micrococcus catarrhalis* is a common inhabitant of the respiratory mucosa in infectious conditions and in some cases exist in nearly pure culture. It does not appear to produce specific lesions.

4. The influenza-like bacillus from whooping cough is pathogenic for man; its specificity is doubtful. Present data permit us to consider these bacilli as secondary invaders in all the diseases in which they are found. A primary invasion at times should be considered a possibility.

5. Influenza-like bacilli are readily taken up in the test-tube by unwashed leucocytes and to a less extent by washed leucocytes. This spontaneous phagocytosis is not affected by varying the concentration of the salt solution between 0.6 per cent. and 1.4 per cent.

6. Injection of these bacilli into animals causes the production of specific agglutinins and probably also an increase in opsonins in the serum. Because of the occurrence of spontaneous phagocytosis and agglutination in such sera the determination of the opsonic index for these bacilli is rendered unreliable.

Extraction of Set of False Teeth from the Esophagus.—Chiari has recently reported (*Wien. klin. Wochschr.*, xx, 147, 1907) the successful extraction of a set of 5 false teeth on a plate, 4.5 by 2.5 cm., which had been swallowed during sleep. The patient was a man of 38, who awakened suddenly with suffocation and retching, which soon subsided, but he could not eat solid food. He had no pain nor fever, and several physicians diagnosed cancer of the esophagus. After a month, radioscopy revealed the foreign body and it was readily inspected through an esophagus tube after cocainization. A smaller tube was then introduced and the foreign body was drawn out readily, not through the tube, but with it. He has found inspection usually possible in such cases, as conditions that favored swallowing the body also favor inspection.

THE CURE OF HYSTERICAL PARALYSIS BY RE-EDUCATION OF KINESTHETIC CENTERS.

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The sudden disappearance of hysterical paralysis, through religious excitement, hypnotic suggestion or great faith in the assertion of a particular physician, has been made so familiar to the profession that many, no doubt, think of it as the normal and eminently desirable mode of recovery. I have had a moderate share of such cases, sometimes being able, within the clinic hour, to make a patient with hysterical hemiplegia or paraplegia throw away his crutches and run about the room. These spectacular cures are intensely interesting and valuable from the purely scientific as well as from the practical standpoint, and they are within the reach of any physician who is sure of his diagnosis and able to pick out the favorable case.

Nevertheless, the method that aims at such sudden cures is not the one to be generally chosen. It will succeed in only a few of the cases and it stakes too much on the immediate effect of predictions, which, by promptly failing of verification, may prevent future success. Moreover, prompt success may have its disadvantages. Immediate relief from paralysis, which is only one symptom of the hysterical state, may prevent the patient from receiving that enlightenment and discipline which are essential to anything more than a superficial and transient improvement.

As a basis for a better method we must have an explanation of hysterical paralysis that will unite all favorable influences into a consistent plan of treatment. This was impossible a generation ago, but modern neurology can at least furnish a working hypothesis.

Probably the most constant accompaniment of hysterical paralysis is the anesthesia of the paralyzed parts, especially the absence of those sensations normally caused by motion. The patient can not feel the motions of the paralyzed limb nor can he think of them, except, perhaps, in visual images. Now this absence of kinesthetic sensations and kinesthetic ideas is not merely a complication. It must necessarily cause paralysis, because every voluntary motion must be preceded by the idea of the motion, and its continued execution must be controlled by an orderly series of sensations aroused by the movements already made.

These sensations and ideas of motion are a function of the sensory convolutions back of the Rolandic fissure. In normal volition these convolutions are first excited (by association impulses from other cortical centers) and then, directly or indirectly, by association impulses, they arouse the corresponding motor centers in the precentral convolution. In sending out these association impulses the kinesthetic centers are subject to facilitation and inhibition through the influence of other cortical centers. All that we know of the mental factors in hysteria favors the view that in hysterical paralysis the kinesthetic center is overwhelmed by a preponderance of inhibitory impulses, incidental to the perverted ideas and emotions. It can not act with sufficient vigor to awaken the idea of what is to be done or to send the necessary association impulses to the motor centers, so the limb remains motionless, although the motor centers, connecting tracts and muscles are in perfect order. This is in striking contrast to cases of organic paralysis caused by lesion below the cortex; in such cases the

kinesthetic centers being unharmed, the patient retains a vivid idea of the movement desired and often feels that the limb must move or even that it has moved.

If this theory of hysterical paralysis is correct the first object is to awaken the dormant kinesthetic center. This can best be done by a skilful combination of favorable influences, emphasizing now one and now another, according to the needs of the individual patient and the progress of the case. If the improvement is rapid, very well; but if it is slow there is still a definite plan to be followed.

First in time and also in importance is the effort to raise the emotional tone of the patient. It is a familiar fact that voluntary motion is greatly facilitated by exhilarating emotions and powerfully restrained by depressing ones. Mania and melancholia furnish extreme illustrations of the general law and the milder emotional states have a proportionate effect of the same kind. The effort to substitute exhilarating for depressing emotions should be along two different lines, mental and physical.

After the careful recording of the history and thorough examination of the patient, the assurance that there is no organic disease and that recovery may confidently be expected is the best beginning of treatment, and throughout the case success and favorable indications are to be dwelt on and the opposite ignored. Sometimes our first attempts in this direction meet with but scant success; the patient may be apathetic or may even oppose and actively resent our cheerful view of the case. When this attitude is encountered it is well to resort to a device I learned long ago from Dr. S. Weir Mitchell. If the patient is a young woman intimate that you are especially anxious to get her well because her disability would, if permanent, necessarily interfere with her happiness by making her less attractive and possibly subjecting her to ridicule. Usually a mere hint, let fall apparently by accident, will be quite sufficient, and the idea once lodged we should hasten to dwell on the contrasted prospect of a happy life and the pride of health. In the case of a young man or boy an analogous idea may easily be made effective. With children the offer of a reward, to be delivered when recovery is complete or has reached a certain stage, will be better.

The physical measures for invigorating the nervous system and at the same time improving the emotional condition, namely rest, food, tonics and sedatives, are of great importance, but I will not consider them in detail, as physicians are generally far more familiar with them than with the mental influences just considered. I think also that they are on the whole less essential to success. It seems to me that the profession has erred very greatly in thinking of the brilliant results of the rest cure in certain cases of hysteria as due to the physical effects of rest in bed, full feeding, massage and electricity, whereas it is mainly due to the great psychologic insight and moral influence of Dr. Mitchell and his successful followers. Nevertheless, both mental and physical remedies should be applied in harmonious combination.

While trying to improve both the mental and the physical functions of the brain as a whole, we can act specifically on the dormant kinesthetic centers by sensory stimulation. Strong faradic currents, applied to the skin and muscles, followed by vigorous, even rude, passive motion of the affected joints, have a powerful tendency to restore sensations and ideas of motion. The patient must be urged to pay close attention and to note even the slightest beginning of sensation. In hysterical anesthesia the loss is not absolute. The sensory centers act, although inefficiently, and the sensations are obscurely present, but they are so feebly associated with what is vividly in the field of consciousness that they seem to be absent. Attention to the anesthetic limb and the effort to recognize its sensations tends to bring its cortical sensory centers into relation with all the rest of the cortex and to make its sensations a part of the whole field of consciousness.

Having awakened some degree of normal sensibility, the cure will be completed by exercises in voluntary motion. But preliminary to these any inhibitory fears must be overcome. For example, the patient may say that she not only can not move the left leg, but that merely trying to do so causes a dreadful pain in the head, neck or back. This pain is doubtless purely mental in its origin, but it is nevertheless real (just as nausea excited by the idea and fear of nausea is real) and the fear of pain may excite contraction in the opposing muscles when the patient is urged to move the limb. The difficulty can generally be removed by careful examination of the seat of pain and assurance that no harm can come of the attempt, but that on the contrary the pain will quickly cease to appear if defied to do its worst.

If the paralysis is nearly total the limb should be so placed that its weight will favor the attempted movement. This will assure some motion which the patient sees and can be encouraged to increase. A beginning once made, the extent and strength of the movement can gradually be increased, always giving something concrete to do, such as kicking an object or placing the foot on it, and always ignoring failure and enthusiastically praising success. When some progress has been made definite movements can be assigned for practice in the interval of the physician's visits.

In this way the normal control of the muscles can gradually be approached and the length of time required may be made an advantage by using it to carry on a re-education in composure and self reliance, without which the cure of paralysis will be but a temporary change in the symptoms, not relief from the disease.

I have recently followed this method of treatment with great care in two cases of typical hysterical hemiplegia, and in both cases the clinical facts and favorable results were in perfect harmony with the theoretical considerations here set forth. One patient was a young man whose paralysis followed a trivial railroad injury. There was loss of posture sense and of ideas of motion in the right leg and efforts to move it caused lumbar pain. The arm was similarly affected, but in a slighter degree. In spite of the fact that he was claiming damages and that I saw him at the request of the railroad company, he willingly co-operated with the treatment, and when he left Denver about two months after the accident was almost entirely well. The other case was that of a young woman whose paralysis came on gradually at the end of pregnancy and during the puerperal period after a long series of confinements, debilitating diseases and worries. The left leg and arm were paralyzed, with corresponding loss of posture sense and ideas of motion, the leg being worse, and the right side was affected in the same way, but to a much slighter degree. She walked only with the aid of crutches, dragging the left leg. The paralysis of the leg seemed absolute in the ankle and knee and it was difficult to make any start in voluntary motion. There was also an inhibiting hys-

terical pain. After partial revival of the posture sense by means of electricity and passive motion, exercises in moving the foot were begun and progress, although slow, was steady. After a time the crutches were discarded and walking was good, with the aid of a light cane. A striking feature in this case was the slowness of all voluntary motions in the affected area. When the patient left for her distant home, although this defect was still apparent, there had been a great gain in promptness of movement. The gain in appearance, general health and mental vigor was quite as marked as that of voluntary motion.

THE UNDERLYING PRINCIPLES OF TUBERCULIN THERAPY.*

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Tuberculin has now been subjected to the test of time. It has been in continuous employment for fifteen years. It has been used in many experiments on animals and its virtues have been tested on human beings. In spite of this mass of laboratory and clinical experience there seems to be but a hazy idea as to what tuberculin is, how it acts, and what it is expected to do.

In order to understand the principles which underlie tuberculin therapy we will discuss: First, Nature's method of cure in specific diseases; second, conditions which militate against tuberculosis in curing itself; third, the manner in which specific inoculations of tuberculin aid in the cure of tuberculosis.

NATURE'S METHOD OF CURE IN SPECIFIC DISEASES.

When pathogenic microbes gain entrance to the organism certain phenomena take place. If the microbes are exceedingly virulent, if the resisting power of the organism is low, or if the microbes gain entrance in great numbers, infection is likely to occur. On the other hand, if the microbes are not highly virulent and do not gain entrance in too large quantities and the resisting power of the organism is good, infection will probably be warded off.

When pathogenic microbes gain entrance to the body the organism at once attempts to destroy them. An increase in the amount of serum and in the number of leucocytes at the point of attack is at once noticed. The microbes, on the other hand, begin to multiply and a battle for mastery ensues. The microbes during their activity produce a toxin which has a stimulating effect on the vasodilators[1] and cause an afflux of serum to the part. If given off in small amounts the toxin stimulates the cells of the organism, which react and form defensive bodies; if given off in large quantities the toxin may destroy the cells entirely. Thus a slight infection tends to cure itself, while a severe one tends to destroy the invaded organism.

Several defensive bodies which are produced by the organism have been studied in recent years, such as antitoxins, lysins, coagulins, precipitins and agglutinins. Recently there has been added to these another of great interest, the opsonins of Wright and Douglas. These investigators have shown that the old humoral theory of disease is, at least in part, correct. The brilliant work of Metchnikoff had almost established the leucocyte as the chief agent in the defense of the organism against infection, but these investigators have gone one step further and shown the poor leucocyte to be absolutely helpless unless aided by the blood serum. They have discovered in the blood serum a substance which acts on bacteria and prepares them for destruction by the leucocytes. This substance they have called "opsonin."

Through the study of the opsonic power of the blood our knowledge of the phenomena which take place during infection and during Nature's efforts at curing the infection have been materially increased.

If an organism is infected by a given pathogenic microbe the power of the blood for destroying that microbe diverges from the normal. If the infection is local the opsonic power is persistently below normal; if it is systemic it will vary from below normal at certain times to above normal at other times.[2] However, the opsonic power of the blood of an infected organism is naturally low for the specific microbe, causing the infection.

In order to cure an infection Nature increases the natural defenses of the body fluids after the manner mentioned above. This can be studied with exactness by determining the opsonic power of the blood, especially in systemic infections. Every now and then a new amount of toxin will be delivered. If the amount is not too great the cells will be stimulated and react, increasing the natural defenses, as shown by a rise in opsonic power, and the patient will improve; or, if the amount of toxin be too great, the opsonic power will be lowered and the patient may be destroyed.

CONDITIONS WHICH MILITATE AGAINST TUBERCULOSIS CURING ITSELF.

When tubercle bacilli gain entrance to the tissues they at once begin to multiply. They give off toxins which stimulate the vasodilators, causing an afflux of serum and leucocytes to the point of attack. If conditions are favorable to the invaded organism the bacilli will be destroyed. If not the micro-organisms become surrounded by leucocytes, proliferation of the fixed cells takes place, and the bacilli are shut in. A tubercle is formed as a result of Nature's conservative effort to wall off the bacilli.

But this very conservatism proves an injury and defeats its own purpose. As the tubercle increases in size the blood supply to its interior is shut off. Toxins are liberated by the bacilli, and this poorly vascularized tissue breaks down, the center of the tubercle softens. These toxins if set free into the blood stream in the proper quantities would stimulate the cells of the organism to the formation of defensive elements, and thus heal the lesion, but they are liberated at irregular intervals and in varying quantities, consequently their value as curative agents is interfered with.

Another thing must be considered. The tubercle bacillus is surrounded by a dense envelope which prevents it from giving off its toxins freely; infection, therefore, can occur without the cells of the organism having received sufficient stimulation from the bacilli to materially increase the natural defenses. In tuberculosis, then, there is a failure on the part of Nature to supply the stimulation necessary to bring about a cure. If the natural defenses of the organism are sufficient

* Read before the American Therapeutic Society, New York, May 3-5, 1906.

1. Roger: Infectious Diseases, 1903, 170.

2. Wright: General Principles of the Therapeutic Inoculation of Bacterial Vaccines as Applied to the Treatment of Tuberculous Infection, Lancet, Dec. 2, 1905.

either infection does not occur or healing takes place, but if any considerable aid is required a cure does not result.

One other factor which prevents a cure in tuberculosis is the tendency for the disease to spread. As stated above, the natural defenses of the organism infected by tubercle bacilli are reduced. When tubercles soften and break down bacilli are liberated. They may pass out through the air passages or they may be set free in the tissues and tend to cause a new focus. The conditions are nearly always favorable for infection to take place, resisting power low, blood poor in defensive bodies, and not able to freely enter the parts where infection is starting. If these bacilli were to pass into the blood in not too great quantities at a time so that they could be freely acted on infection would not be so common, but instead they pass into adjacent lymph spaces where conditions are most favorable for infection to take place. In fact, we may assume that infection takes place in favorable locations as a rule, as Wright[2] so well expresses it:

I conceive that these micro-organisms are cultivating themselves under conditions which do not even remotely resemble those which they would have to confront in the circulating blood. In the case of bacteria in the actual blood stream all the antibacterial elements of the organism would come into application on them. In the case of bacteria cultivating themselves in the tissues, only those antibacterial elements would come into application which had passed out from the blood in the lymph in the region of the infection. Further, inasmuch as lymph, coming in contact in succession with a number of bacteria, or as the case may be, with their products, would part with its antibacterial elements to those first encountered, retaining after percolating through a first bacterial nidus to a second, or through the outer portion of such a nidus to its interior, a residual trace only of its orginal antibacterial power, there would come into existence, in particular in the case when the lymph-flow stagnated in the tissues, conditions far more congenial to the cultivation of bacteria than those which obtain in the blood.

HOW TUBERCULIN AIDS IN THE CURE OF TUBERCULOSIS.

As previously stated, Nature's method of cure in infectious diseases consists in the organism producing defensive bodies in response to stimulation from toxins engendered by the specific microbe which causes the disease in question. Attention was also called to the fact that in tuberculosis, owing to the nature of the bacillus and the character of the tubercle, this specific toxin which stimulates the cells to the formation of anti-bodies fails to gain access to the blood in proper quantities and at the proper intervals to be effective. In this connection it should be remembered that too great stimulation is harmful and will defeat Nature's own purpose. That the blood is deficient in protective substances is shown by the measurement of its opsonic power. This is, as a rule, below the normal standard, although there are exceptions which remain to be explained.

Bulloch,[3] assuming that the opsonic power of his own blood is normal, compared that of 84 healthy people with it. Counting his own as one, the index of the 84 averaged .96, and varied from .8 to 1.2. From these experiments we assume that the opsonic power of the blood of healthy individuals toward the tubercle bacillus varies from .8 to 1.2.

In 150 cases of lupus tested by the same author the average opsonic index was .75, and the manner in which the various cases had responded to treatment was in accord with the index. Those which had done badly showed a low index, while those that had responded to treatment showed a higher index. That the opsonic index in those patients suffering from tuberculosis can be raised by the injection of tuberculin has been thoroughly established by Wright,[2] Bulloch,[3] Lawson and Stewart[4] and others.

Lawson and Stewart[4] demonstrated what can be done by injections of tuberculin in raising the opsonic index. They measured the index in twenty-four patients who had undergone the usual open-air sanatorium treatment for periods varying from one month to two years and three months, and whose indices were .80 and below, in twenty out of twenty-four cases. Within a period of six weeks during which inoculations of tuberculin were given the indices of these patients went to normal or above normal in all but one case, as is shown in the following tables taken from the paper quoted:

TABLE 1.—THE OPSONIC INDICES OF 25 CASES OF PULMONARY TUBERCULOSIS AFTER VARYING TERMS OF TREATMENT (WITHOUT TUBERCULIN INOCULATIONS.)

Initial.	Duration of disease.		Duration of Treatment.				Opsonic Index.
			Climate.		Sanatorium.		
	Years.	Mths.	Years.	Mths.	Years.	Mths.	
M.	2	6	1	..	1	..	1.1
K.	1	2	..	..	1	2	1.0
L.	..	5	..	..	..	5	0.9
H.	..	5	..	..	..	2	0.9
McC.	4	3	..	..	1	7	0.9
M.	1	..	..	..	..	2	0.8
L.	4	6	4	..	..	..	0.8
McD.	3	10	2	4	1	4	0.8
F.	2	..	..	..	2	3	0.8
W.	1	5	..	2	..	10	0.8
G.	4	..	..	..	..	2	0.8
T.	..	2	..	..	..	2	0.8
P.	4	3	..	..	..	1	0.7
McA.	4	1	2	6	1	1	0.7
M.	7	..	1	..	1	2	0.7
H.	8	..	6	..	..	6	0.7
A.	1	2	..	..	..	9	0.7
B.	1	9	..	..	..	10	0.7
B.	2	..	..	3	1	4	0.7
M.	1	..	..	..	..	4	0.7
K.	..	4	..	..	..	4	0.7
W.	3	..	..	..	1	4	0.5
A.	3	6	..	..	2	2	0.5
S.	1	5	..	1	1	..	0.5
G.	2	4	..	..	1	10	0.5

TABLE 2.—COMPARISON OF THE OPSONIC INDICES OF THE BLOODS OF 23 PATIENTS, TAKEN AFTER A TERM OF SANATORIUM TREATMENT ONLY, WITH THOSE TAKEN AFTER A SHORT TERM OF SANATORIUM PLUS TUBERCULIN (T.R.) INOCULATIONS TREATMENT.

Initial.	O. I. before inoculation.	Doses given within a period of six weeks.	O. I. after inoculation.
S.	0.5	4 of 1/500	1.5
P.	0.7	4 of 1/500	1.3
Mc. A. ...	0.7	4 of 1/500	1.1
McD.	0.8	4 of 1/500	1.0
W.	0.5	5 of 1/500	1.1
A.*	0.5	1 of 1/500, 1 of 1/1000	0.8
M.	0.7	3 of 1/500	1.3
B.	0.7	3 of 1/1000	1.2
F.	0.8	3,1/500; 1, 1/50; 1, 1/500	1.3
A.	0.7	3 of 1/500	1.2
L.	0.9	3 of 1/1000	1.2
W.	0.8	1 of 1/1000	1.1
K.	1.0	1 of 1/1000	1.1
H.	0.9	3 of 1/1000	1.4
B.	0.7	4 of 1/500	1.3
M.	0.7	1, 1/1000; 1, 1/2000; 1 1/1000	1.5
G.	0.5	4 of 1/500, 1 of 1/400	1.1
H.	0.7	2 of 1/1000	1.0
G.	0.8	3 of 1/1000	1.0
K.	0.7	4 of 1/1000	1.3
McC.	0.9	3 of 1/1000	1.4
T.	0.8	2 of 1/500	1.2
M.	0.8	3 of 1/500	1.4

* Spinal complication. Index eventually rose above 1.0.

3. The Treatment of Tuberculosis by Tuberculin, Lancet, Dec. 2, 1905.

4. A Study of Some Points in Relation to the Administration of Tuberculin. Lancet, Dec. 9, 1905.

This is in harmony with the observations of Koch,[5] Moeller[6] and others as regards the increase of the agglutinating power of the blood after the administration of tuberculin. This increase of the agglutinating and opsonic power of the blood means that the natural defenses of the organism have been increased. The organism has been given greater power to combat the disease than before. In Table 1 the average opsonic index is shown to be .75 during ordinary sanatorium treatment, and in Table 2 it appears as 1.19 after tuberculin has been added. Thus the power of the organism to combat the disease as measured by the opsonic power of the blood was increased 58.6 per cent. by the addition of tuberculin.

The importance of this can be seen in this way. The opsonic power is that power of the blood serum which prepares the bacilli to be destroyed by the leucocytes. In the above tables the leucocytes of those cases which were treated by ordinary sanatorium methods (Table 1) were able to destroy only 75 per cent. of the number of tubercle bacilli that a normal person's blood should destroy, while the leucocytes of the same patients (Table 2) after treatment with tuberculin were able to destroy 19 per cent. more than the leucocytes of a normal individual.

The value of this increase of the natural defenses of the organism is evident. When we remember that the one reason why tuberculosis kills is because of its tendency to spread to new tissue, either adjacent or distant, we can readily understand how great an advantage those patients enjoy who have their body fluids well charged with defensive bodies, ready to attack and destroy the bacilli as soon as they come in contact with them. If the body fluids are rich in antibodies a small outbreak of bacilli into a new area would doubtless soon be cared for, while a large number might cause an infection; yet we can conceive of so many more of the germs being destroyed by a highly defensive body fluid than by one poor in defensive bodies that the infection could not help being favorably influenced, even if not prevented.

It has long been claimed by men familiar with tuberculin therapy that the disease shows much less tendency to spread in those cases treated by it than in those treated by ordinary methods. In the light of these new discoveries in immunity and immunizing treatment this is easily explained. This immunizing action of tuberculin is not its only method of aiding in bringing about a cure. Tuberculous areas are naturally very slow of healing. Tuberculin when administered in proper doses and at proper intervals furnishes a stimulation for these areas which hastens healing by stimulating the formation of fibroid tissue. Theoretically, then, tuberculin has a firm foundation on which to stand. Now let us turn our attention to its clinical workings and see if they confirm the theory.

The real test of tuberculin is in pure tuberculosis. After destruction of tissue has taken place, after other organisms have entered the field, after the general constitution has become undermined, after consumption has supervened, then we should not demand a cure of tuberculin. Nothing short of the elixir of life would be a specific for such a condition. While I believe that tuberculin is of great value in chronic non-febrile cases of tuberculosis, yet it is in early cases that we should expect most brilliant results.

In a former paper[7] I collected data of 1,200 first-stage cases of tuberculosis. Of these 611 were treated in sanatoria with ordinary open-air treatment, with a result of 391 or 64 per cent. being apparently cured; 589, most of whom were treated outside of sanatoria, were treated with tuberculin, with a result of 496 or 84.2 per cent. being apparently cured. This shows 20.2 per cent. more apparent cures with tuberculin than without.

Another test of the value of tuberculin is the permanency of results. It is generally accepted that cases treated by it show less tendency to relapse. Although the comparative results of very few observers have been recorded, yet the general experience is in accord with that of Trudeau[8] and Turban.[9] In harmony with this is the observation of Bulloch[3] on the opsonic condition of patients who have been treated for tuberculosis. He examined the blood of 14 well-to-do patients who had undergone sanatorium treatment with so-called satisfactory results. In every case but one the opsonic index was low. In at least one which was called a perfect cure the disease had relapsed within a year. This also is in harmony with the experience of Spengler. He says "a patient whose agglutinating power is low stands much greater risk of relapse than one whose agglutinating power is high."

Another clinical proof of the value of tuberculin is its action on local visible tuberculosis as we find it in the larynx. Most observers are of the opinion that tubercular laryngitis is almost absolutely fatal. The prognosis is not justifiable if the disease is treated in the proper way. No remedy offers so much hope in these cases as tuberculin. The dosage can be absolutely controlled, and with patience and perseverance a cure can be obtained in a large percentage of cases, even after ulceration has occurred, although the lesser infiltrations are easier to treat and offer better chances of cure. In a report[10] of 15 cases made by me the lesions healed so that there was no further reaction to tuberculin in eleven instances. These results were not obtained quickly. Treatment extended over several months, and in one or two instances many months. The key is patience and care. In a recent visit to many of the world's sanatoria I found that tubercular laryngitis was considered curable or incurable, as the observer used tuberculin intelligently or unintelligently or not at all.

Further clinical proof comes from those who are using tuberculin in treating pulmonary tuberculosis. Moeller's[11] statistics show a much larger percentage of cure where tuberculin is used; in fact, the reports from men who are using tuberculin intelligently can not be duplicated by the ordinary methods. Some men who are not thoroughly committed to the use of tuberculin employ it in cases which do not improve satisfactorily under ordinary methods. What greater compliment could be paid to this remedy? If it is of such great value in this class of cases would it not be reasonable to suppose that it might also help these same men in some of their easier cases?

Recent reports from Wright[2] and Bulloch[3] show that tuberculin can be used to advantage also in other forms of tuberculosis, such as ulcerations of the subcutaneous

5. Deutsch. Med. Wochschr., 1901, 48.
6. Ueber die diagnostische und therapeutische Verwendung des Tuberculins, Zeit. f. Tuberkulose und Heilstaettenwessen, 1902, 279
7. A Critical Study of Tuberculin and Allied Products Based on a Collective Investigation, Therap. Gaz., 1903, p. 163.
8. Tr. of American Physicians, 1900.
9. Quoted in Welcker's Beitr. z. Frage d. Volksheilstætten, p. 22.
10. The Treatment of Tubercular Laryngitis with Watery Extract of Tubercle Bacilli, with Observations on the Action of Specific Inoculations in the Treatment of Tuberculosis, Rep. of Nat. Assn. for Study and Prevention of Tuberculosis, 1906.
11. Zeitschrift f. Tuberkulose, 1904, v, 415.

tissue and bone, invasion of the lymph glands and infections of the genito-urinary system. Wright's results in these usually intractable cases are so good that he says:[2]

In view of the very favorable and, what is almost more important, uniformly successful results which can, as will have appeared, be obtained even in the most intractable cases of localized tubercular infection by the therapeutic inoculation of tuberculin carried out under the safeguards explained above; and in view of the fact that not less favorable results can be obtained in connection with the treatment of other localized infections by the aid of the corresponding bacterial vaccines, I do not hesitate to contend that we have, in the power of raising the antibacterial power of the blood with respect to any invading microbe, out of all comparison the most valuable asset in medicine. I would, in view of this new asset in medicine, fain induce the surgeon to abate something from his conviction that extirpation and the application of antiseptics offer in connection with bacterial infection the only possible means of cure. I would have the surgeon resort to extirpation only when the physician tells him that all other means have been exhausted; and I would have the physician assume everywhere the rôle of an immunisator; and I would have him defer handing his patients over to a surgeon before he has tried in every case of localized bacterial infection which is unassociated with immediate risk to life the therapeutic inoculation of the appropriate bacterial vaccine.

With this mass of evidence before us we must admit that tuberculin therapy is in accord with the modern theories of immunity; that theoretically tuberculin is capable of increasing the natural defenses of the organism when given in the proper doses at proper intervals, and that clinical experience in its administration warrants a more general use of it in combating tubercular infection.

CONSERVATIVE SURGERY OF ARMS AND LEGS.

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The simplest way to treat a badly injured limb is by amputation, but the simple and direct method if it involves too much sacrifice may not always be best for the patient. In certain cases amputation is slightly safer, as the attempt to save the limb may be attended with some danger to the patient, while amputation shortens treatment and conservative treatment is tedious and may extend over many months. What patient will not willingly accept a small chance of risk to life rather than the certainty of loss of limb? In times of such great national calamity as war when available hospital space is overcrowded, when proper nursing and dressing are at a premium, many limbs must, of necessity, be sacrificed. At such times both more radical and more conservative surgery must often be practiced than would be deemed desirable in times of peace.

Great stress has recently been laid by Reclus and other French surgeons on the value of systematic conservatism in the treatment of injuries of the extremities, some of them going so far as to lay down the rule that no primary amputation should be done. They believe that bleeding points should be ligated, the injured parts irrigated, dressings applied, the general condition of the patient looked after and amputation, if needed, done later when the patient has recovered from primary shock and has accumulated strength with which to combat the dangers of anesthetic and operation. Whenever the circulation of a part distal to the injury is at all fair, there is surely considerable reason for believing that the limb can be saved. The brilliant work of Carrell and Guthrie in the anastomosing of blood vessels gives promise of something better in the future than has been known in the past for limbs whose main vessels have been divided. The restoration of continuity of tendon and nerve has given most signal functional results in many cases. Extensive laceration of the soft tissues combined with comminuted or other serious fractures constitute a most serious condition and one that will tax the care, the ingenuity and the skill of the surgeon in his attempt to restore anything like a normal condition. The young and healthy individuals will have chances for a restoration of the circulation by the collateral vessels far in excess of the older patient whose circulatory capabilities are on the retrograde. Both the radial and ulnar arteries of the forearm may be severed and yet the circulation be sufficient to save the limb; the femoral artery has been severed and yet the collateral vessels maintained the life of the member. In all accident cases I try to give the patient the benefit of the doubt and make an earnest effort to save the limb, though it not infrequently happens that I have to resort to amputation later. By carefully watching the patient and by the exercise of surgical judgment but little risk to life is assumed by the waiting. Prior to 1877 amputation after compound fracture was the universal rule. Volkmann was the first to secure satisfactory results by other means.

The application of a tourniquet often seriously impairs the vitality of the part, especially so if the constrictor remains in position for any considerable length of time. It is an easy matter to pick up and ligate most bleeding points. A compress held in place by a bandage will control most cases of bleeding. When possible to avoid it the tourniquet should not be used, as the deprivation of blood supply to the distal part entailed by its use exercises a most malign influence on the tissues. The skin may be almost entirely stripped from a limb and yet the chances for restoration be excellent because the blood vessels are uninjured. No matter how large the defect, the covering can be restored by skin grafting. It is always best to delay operation until preparations can be made to do the work by a carefully planned and perfected technic. Two or three days' waiting can hardly do harm provided the limb is properly looked after. Many advantages may be obtained by this delay. The patient has ample time to recover from the primary shock and we can tell almost to a certainty whether or not amputation is required.

Do not probe or disturb the interior of the wound before applying first-aid dressing. If this does not control the bleeding, apply tourniquet and blanket splint and get the patient to the operating room. The ordinary methods of cleansing pursued are prone to carry much new infective material into the wound. Scrub from, not toward, the wound, be careful not to allow soap, water or other solutions to run into the wound while the limb is being cleansed. Turpentine, gasolin, benzin or soap and water followed by alcohol or ether are all effective and their varying use is only a matter of choice. Lastly I apply to the limb 0.5 per cent. iodin solution. I irrigate the wound thoroughly with hot normal salt solution.

If the circulation is good and the condition of the patient warrants it, the fractured ends of the bones are united by suture, 30-day chromicized catgut of large size, No. 3 being preferred. If wire is used, it should be removed after it has served its purpose, for the reason that any foreign body left in the tissues, of necessity,

acts as an irritant. Bronze wire is the best, having great tensile strength; iron wire is fair, but silver wire is too brittle to be of service. Severed tendons are sutured, drainage provided for and splints applied. On the other hand, if the vitality of the part is at all endangered there should be just as little interference as possible; useless manipulation may cause much injury to the soft tissues by the cutting done by the sharp fractured ends of the bone. Drainage should be provided, the wound irrigated and the bones held in place by traction or splints or both. Tendons, nerves and bones are better sutured some time later after the circulation of the part has been restored in a measure.

When the fracture is comminuted or oblique, simple wrapping is probably one of the most effective methods of holding the fragments in proper position. Plating is an excellent method of treating some varieties of fracture. All detached bone fragments should be removed, as they will otherwise act as foreign bodies and promote suppuration. Whenever possible the periosteum should be preserved so that regeneration of bone may take place. The wound should be carefully searched for bits of foreign material, and one should see that no soft tissues are interposed between the ends of the bones. When there has been much dirt contamination it is well to give an immunizing dose of tetanus antitoxin as a safeguard.

The after-care of these cases is a great tax on the technical skill and ingenuity of the surgeon. Splints and other appliances for immobilization are too numerous to mention or discuss, a sad commentary on their unsatisfactoriness. The problem of immobilization requires much ingenuity, since no treatise, however complete, can give directions that will cover every contingency that may arise. The varied requirements are practically innumerable. Prevention of motion with fair approximation and apposition of the bone ends must be secured if possible. Frequent changing of the splint in compound fractures has its serious disadvantages and should be overcome if possible. Where there is much mobility an excessive amount of callus will form and may include and press on some important nerve trunk. A fenestrated plaster dressing suits many of these cases and it can be protected from the wound discharges by some of the numerous methods in vogue. A few of these cases, those that are strictly clean and can be kept so, are better off without drainage. Most are infected either by the accident or the treatment, as the opportunities are many and the susceptibility great. Men doing referred practice sometimes blame the physician who gave the first aid for the infection. The wound is often infected before the case is seen by a physician, the conditions often being such that infection is unavoidable, being carried in at the time of the accident from the skin or clothing or from the traumatic agent.

Most of these cases need drainage, and gauze strips are usually effective except for hemostatic purposes. Rubber tubing (split or fenestrated) is not only satisfactory as drainage, but is a great convenience when we wish to irrigate the wound. These drains should be placed, whenever possible, so as to get the assistance of gravity. Infected wounds should have ample provision for drainage and irrigation. When there has been extensive laceration of the skin and muscles it is best not to attempt to close the wound completely. There is great liability to suppuration because of the lowered resistance of the traumatized tissues and by reason of the excellent culture media furnished by the extravasated blood and serum and the frequency of initial infection.

I have discontinued the use of peroxid of hydrogen and have never used a bichlorid of mercury solution in the irrigation of wounds. I am satisfied that both promote rather than decrease wound secretion. Warm normal salt solution is a good mechanical cleanser and is non-irritating to the tissues. A weak solution of iodin is possessed of a maximum bactericidal power combined with a minimum toxic and irritant effect. It not only has a destructive effect on pus germs, but to a great extent will seal the ends of the lymphatic and blood vessels against the absorption of septic material.

The fractured ends of the bone may give trouble by necrosis, in which case the necrosed bone may be removed from time to time without much difficulty. In gangrene without infection amputate at the point of fracture and regulate those of the stump later. In gangrene with infection removal of tissue must be radical and extensive. The after care of many in these cases is tedious and prolonged. Necrosed bone will have to be removed from time to time. There will often be chronic suppuration and the patience of both operator and patient will be severely tried. In cases in which trauma has been severe sloughing will usually be extensive and infection almost certain. Antiseptic solutions should not be used on bone, as they are very destructive to the periosteum.

There are certain disadvantages that may accompany the retention of crippled limbs, such as contractions of tendons and fascia, ankyloses of joints, chronic edema from inclusion of blood vessels in callus or scar-tissue, and disturbances of innervation from pressure on nerve trunks, and the treatment is lengthy and expensive. On the other hand, the expense of an artificial limb is saved, contractions and joint stiffness may be largely prevented and overcome by passive motion. Complete ankylosis has been relieved and the joint made mobile by the plastic interposition of fascia between the bone ends, brilliant results have been achieved in nerve surgery even after the lapse of many years from the time of the accident, and tendons are transplanted or anastomosed with ease. True, amputation gives in most cases far quicker results, but who does not prefer the arm or leg God gave to some clumsy device contrived by man?

Trauma of joints is often followed by infection. Open treatment by irrigation and packing with iodoform gives good functional results, though ankylosis is apt to result. There is an increasing tendency on the part of men who have successful technic to resort more and more to the open treatment of joint injuries and fractures. Bier's method for the production of artificial hyperemia has saved many joints from resection.

With a view to the illustration of the deductions I have made from a study of the subject I have selected the following from a large number of that class of cases; all were notably bad and looked to be fit subjects for amputation:

CASE 1.—D. M., male, aged 22, was referred to me by Dr. C. N. Watts, Dothan, W. Va.

History.—The man had been shot in the left leg at about the junction of the upper and middle thirds by a Winchester rifle; the ball struck the tibia squarely and produced a badly comminuted fracture. An occlusive dressing with splints was applied and the man kept in his shanty in a railroad camp with the hope that healing would take place. After six weeks of this, suppuration not only of the wound but of the entire leg below the knee had become so general that amputation was considered to be the only means of saving the man's life. At the time the patient came to the hospital he had severe chills, fever and sweats, but I decided to make an attempt to save the leg.

Operation.—Under general ether anesthesia the wound was opened, cleansed and several fragments of dead bone removed; four long pus cavities were opened freely, irrigated and drained. These cavities lay in general in the direction of the muscle planes and were connected by sinuses with the original wound. One of them extended some distance above the knee joint into the thigh. Neither the ankle nor knee joints were involved. Under frequent dressings and irrigations some improvement of the leg was manifested, but during the next three months the patient had to be twice anesthetized and new sinuses opened.

Result.—At the end of the tenth week after admission to the hospital, the sixteenth week after the receipt of the injury, there was bony union and the patient was put on crutches. In a month he was walking in a limping manner, but the original bullet wound had not yet closed. The leg was painful when much used. Two subsequent operations had to be done for the removal of carious bone. These cavities finally filled and at the end of the tenth month of hospital residence he left, well, with a straight, sound leg, capable of earning his own living and not likely to become a public charge.

Case 2.—D. A. P., male, was referred by Dr. J. R. Pharr, Dunlcop, W. Va.

History.—This man had received the full load of a shotgun at short range in the region of the great trochanter on the left side, a large part of the load entering below that point, producing a comminuted fracture of the femur. The shaft of the femur was split by an oblique fracture eight inches long. The outer portion of the trochanter was shattered and the neck of the femur split in half, the separation extending inward as far as the head of the bone. The injuries to the soft structures were most extensive, the flesh being badly lacerated and torn. Shotgun wadding, bits of clothing and fragments of bone were most plentiful in this wound.

Operation.—My first thought was to do a hip-joint amputation, but I decided to try more conservative treatment. Considerable time was spent in suturing the bones into some semblance of their former shape. The wound was put in as good condition as possible, iodoform gauze was plentifully packed into the gaping cavity and a long well-padded side splint applied. Great care was taken to prevent wound suppuration. Union was good, the injury to the muscles filled by granulation, and the patient left the hospital at the end of the ninth week, well.

Case 3.—F. B., male, aged 21, a saw mill employé.

History.—Patient fell so that his left arm came in contact with a rapidly revolving circular saw. Two and one-half inches below the elbow the forearm was more than two-thirds sawn in two. The radius was cut entirely in two and the articular end of the ulna was torn completely out of the elbow joint and projected backward past the angle of the elbow for at least two inches. He was brought to the hospital about three hours after being injured and was operated on soon afterward.

Operation.—The wound was irrigated with saline solution, the fractured ends of the radius were wired, and the elbow luxation was reduced. The wound was closed with the exception of a small drainage opening and the arm immobilized in a right angled splint. Healing was primary and passive motion was begun at the end of the second week. Results were perfect and the man now has a normal arm with no elbow ankylosis whatever.

Case 4.—G. H. W., Olcott, W. Va., was referred to me by Dr. W. W. Tompkins, Charleston, W Va.

History.—This man had been severely struck on the left elbow in an accident. The arm was terribly swollen, crepitation in region of the elbow joint could be made out and not much else.

Operation.—I made an incision lateral to the joint and found that the component bony parts of the joint had been crushed. I resected the broken end of the ulna, also the articular head of the humerus, which was fractured entirely across its diameter. Through and through drainage was maintained for a time. A useful arm capable of a considerable range of motion was the result.

Case 5.—H. B. was referred to me by Dr. S. M. Stone, Hugheston, W. Va.

History.—The patient had a Pott's fracture of the right leg, also a compound fracture of both tibia and fibula about the junction of the upper and middle thirds. The injuries to the soft tissues were extensive, there being large lacerations and ecchymoses.

Treatment.—The wound was drained and the bones held in position by splints. A large area of the skin sloughed. Edema of the ankle and foot was severe and persistent, and associated with the formation of blebs. The bones finally united, the uncovered areas were repaired by skin grafting, and six months later the patient possessed a fairly useful limb.

Case 6.—C. H., white, adult male, victim of a mine accident, referred by Dr. J. F. Bowles, Ward, W. Va., had a compound fracture of both bones of the leg midway between knee and ankle, with extensive lacerations of skin and muscles; the lower end of the tibia was projecting from the wound.

Treatment.—The wound of four or five hours' standing was irrigated and the displaced bones reduced. Splints were applied. Despite the use of splints and extension it was impossible to keep the bone ends in apposition. A week later the bones were united by suture and rubber tube drainage through the leg was established. There was considerable sloughing of the soft structures and an area of four inches of the anterior surface of the tibia was exposed. The bone surfaces were rapidly covered by granulations until only an inch of the lower fragment was bare. There was considerable infection. The temperature for the first ten days often reached 103 F. in the afternoon, later it seldom rose above 100.5 F., and by the end of six weeks it had reached normal. At the beginning of the thirteenth week the patient had a severe chill and his temperature suddenly rose to 104 F. Two days later a beginning abscess was discovered in the calf of the leg and opened. Union was then excellent and the patient was able to bear considerable weight on the leg when walking. Thirteen weeks after the original injury a piece of necrosed bone 3 inches long by 1¼ inches wide at the upper end and ½ inch wide at the lower end was removed from the lower fragment of the tibia. The wound is nearly healed and except for a little stiffness in the ankle joint the prospects are good for complete recovery.

CONCLUSIONS.

1. The conservative treatment of severe injuries to the arms and legs is essentially modern, and we should not do primary amputations (except in case of a limb held by only a few shreds), but wait for shock to pass and for the patient to regain strength.
2. We should avoid the use of antiseptic solutions for irrigation and use instead normal salt solution.
3. Bones should not be permanently sutured and we must not be in too great a hurry nor attempt too much in the beginning.
4. Moist gangrene calls for radical treatment.
5. Drainage is usually necessary and the rubber tube is to be preferred.
6. Good functional results may be obtained against great apparent odds, and a saved limb is preferable to an amputation stump.

Therapeutic Power of Mental Effort.—Dr. F. T. Seybert, Council Bluffs, Iowa, states that the therapeutic power of mental remedies is best illustrated in the treatment of functional nervous disorders, especially when associated with mental symptoms. A natural susceptibility, which is one of the strongest factors in the etiology of these disturbances, becomes, when judiciously managed, a means by which curative action can be aroused—so sure is Nature in compensations. In neurasthenia, above all other diseases, there is no prescribed routine of treatment; its diverse causes and varied nature would prohibit this. All remedies which have any bearing and all influences are sometimes needed, and he who has the clearest insight and the most ingenuity in devising ways and means will be the most successful. A change of occupation is often beneficial, and in all cases of long duration employment of the mind is essential.—*Iowa Med. Jour.*

BUTTERMILK FEEDING,

WITH REPORT OF CASES.*

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The use of buttermilk as an infant food has not been tried to any great extent in America, although it has been used extensively in Europe, particularly for many years in Holland. It certainly has not received the attention it deserves as a suitable method of feeding infants with gastrointestinal disorders and infantile atrophy.

One reason for the hesitancy on the part of the profession in this country to take up buttermilk as a food for sick infants has been the uncleanness of much of the buttermilk on the market. Buttermilk from different dairies is such a variable substance that of necessity different results will be obtained from its use by different observers. This is also the reason why the analysis of buttermilk, made at different times, in different places, has varied greatly. No figures can be set down as the exact percentage formula of buttermilk in general, but from a practical point of view we may consider the quantity of fat in buttermilk to vary from 0.25 per cent. to 1.5 per cent., rarely more; in the majority of cases from 0.5 per cent. to 1 per cent. The quantity of sugar is slightly lower than in sweet milk, due to bacterial action, and may be estimated at 3½ per cent. The quantity of proteid in buttermilk averages from 2 per cent. to 3 per cent., in most cases nearer the latter than the former figure.

The casein of sweet milk is in the form of calcium casein, but this is changed in buttermilk to casein lactate. The relative proportion of the principal proteids, casein and albumin, is not the same in buttermilk as in sweet milk. Buttermilk contains a higher proportion of albumin than sweet milk; again, this proportion varies in different buttermilks, depending on its method of manufacture. For instance, buttermilk made from cream has a higher percentage of soluble albumin than buttermilk made from milk, this latter having a higher percentage of casein.

If fresh buttermilk can not be obtained it may easily be made at the patient's home. The following is the method used at the Philadelphia Hospital: A quart of fresh milk is poured into a sterile pitcher and a sterile towel tied over the top of the pitcher to prevent the entrance of dust. This milk is allowed to stand for twenty-four hours in the room, at ordinary room temperature (65 to 70 F.), and at the end of that time all the cream is skimmed off. This sour milk is placed in a small glass churn of one quart capacity and churned for fifteen minutes; it is then removed from the churn and placed on ice until the nurse is ready to prepare the buttermilk mixture. I have examined buttermilk made in this way and found it to contain 1 per cent. of fat. Buttermilk should be used within twenty-four hours after being made.

Plain buttermilk was not given, but the babies I report were fed routinely on a mixture of wheat flour, cane sugar and buttermilk in the following proportions: Buttermilk, 1 quart; wheat flour, 3¾ teaspoonfuls; granulated sugar, 15 teaspoonfuls. A farina boiler, that is a double boiler, is the best receptacle in which to prepare the food. First, carefully mix the flour and sugar with a few spoonfuls of the buttermilk until a smooth paste results. All lumps should be completely smoothed out. The balance of the buttermilk is then added. This mixture is now heated to the boiling point (212 F.), but must not be boiled or it will curdle; it is also essential that the milk be constantly stirred during the entire process or it will curdle.

If a thermometer is not used, at the first sign of bubbling the milk is removed from the fire and rapidly cooled. It is best now to bottle the food, but in dispensary practice if the patients can not afford enough bottles for the entire day the buttermilk should be placed in a pitcher or jar which has been scalded and placed on ice. Before taking out the milk for each feeding the buttermilk mixture must be carefully stirred, as on standing it separates and the flour falls to the bottom of the vessel. It will be noticed that no water whatever is added to this mixture.

I report the cases of twelve infants; these are all I have fed up to date on buttermilk. I wish also to state that I have not selected cases which would be expected to do well, but with the exception of two cases of acute enteritis, which were put on buttermilk at their first visit, in every case regular milk mixtures were carefully tried but without success, before the infants were given buttermilk. Five of these cases were in the baby ward of the Philadelphia Hospital and seven in the dispensary of the Children's Hospital of Philadelphia.

First I will report the cases of five babies in the Infant Asylum:

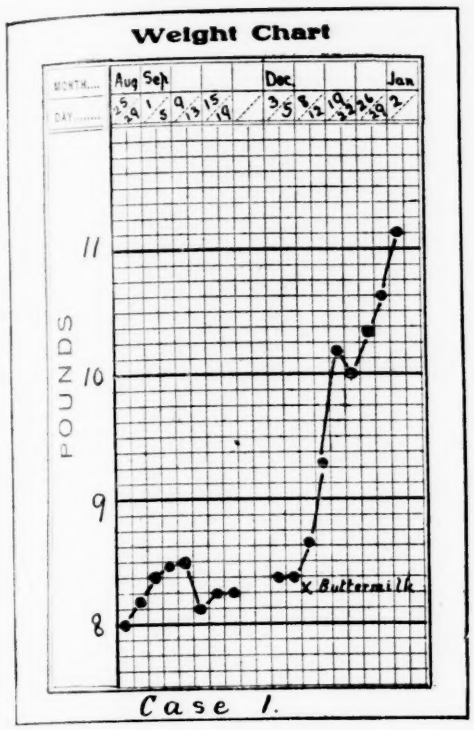
CASE 1.—M. M. was admitted to the Philadelphia Hospital when 3 weeks old. For a few weeks the infant was breast fed, but as it lost in weight, it was put on a milk mixture alternating with the breast. The baby gained only eleven ounces in three and a half months. By this time the child had a well developed case of marasmus, the four months' old infant weighing only 8 pounds 11 ounces, and its evacuations showed undigested food. It was now put on the buttermilk mixture, and in three days the stools were normal and the infant had gained ten ounces; in ten days it gained 1½ pounds, or an average of 2½ ounces a day. In the three and a half weeks during which it took the buttermilk it gained 39 ounces, or 11 ounces a week.

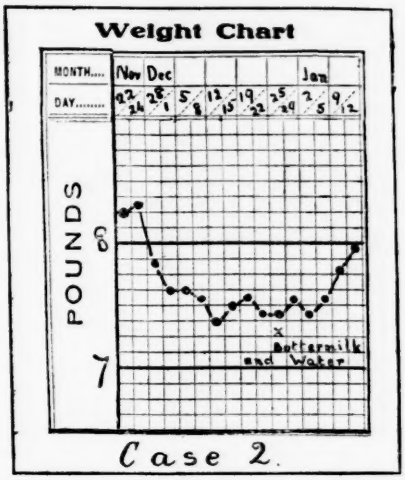
Before taking the buttermilk this baby gained only 11 ounces in 3½ months, but after taking it gained that amount each week. This is an unusual result in a case of infantile atrophy confined in a hospital from 3 weeks of age to the age of 4 months:

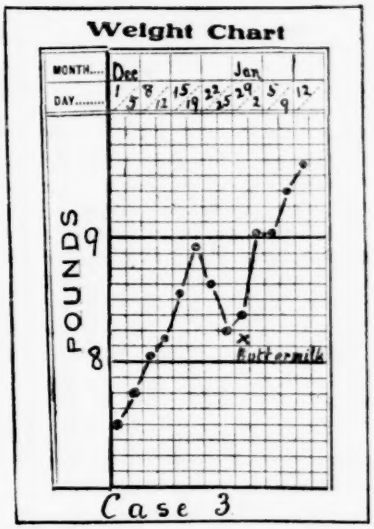
CASE 2.—C. S. was admitted to the Philadelphia Hospital when 9 hours old. This new-born baby was fed on a regular milk mixture for four weeks, in which time it had lost 14 ounces and had developed a severe gastroenteritis, vomiting after each feeding and showing undigested food in the stools, together with a large quantity of mucus. When one month old it weighed 7 pounds 7 ounces, and was put on the buttermilk mixture 1 ounce and water 1 ounce. In three days, as vomiting ceased and the stools showed that the food was properly digested, the baby was put on 2 ounces of the buttermilk mixture undiluted. As it did not digest this, the stools containing curds, it was put back on one-half buttermilk and one-half water and again improved. In three weeks after taking the buttermilk the infant had gained 9 ounces, or 3 ounces a week, and the stools were much improved.

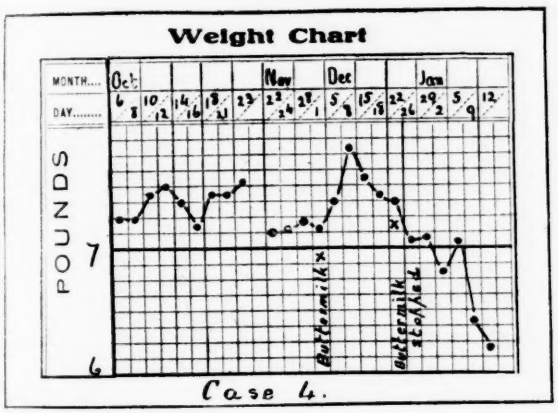
To recapitulate, a new-born baby, in an institution, artificially fed on a modified milk mixture, developed a gastroenteritis and lost rapidly in weight until given buttermilk, when improvement in digestion occurred and slight gain in weight. But for the mistake of putting this infant on buttermilk undiluted I believe the improvement would have been much more rapid.

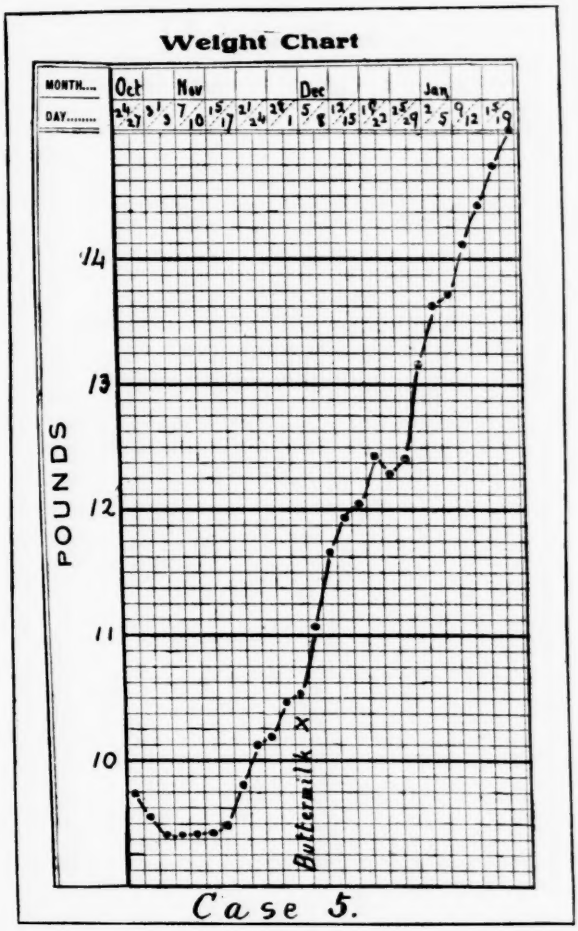
*Read at the meeting of the Philadelphia Pediatric Society, Feb. 9, 1907.

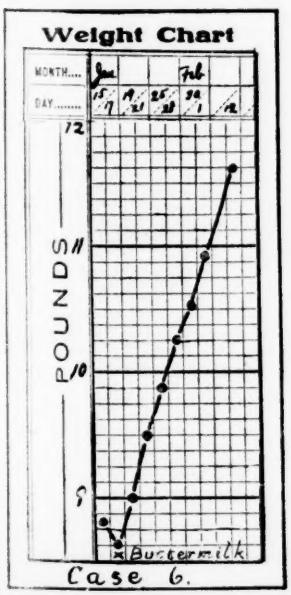


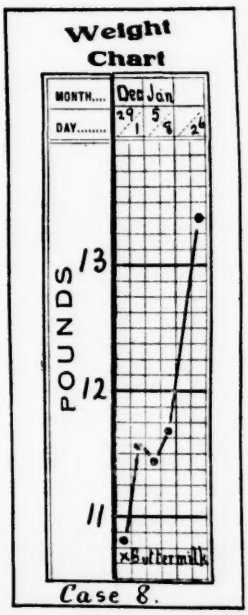












CASE 3.—F. T., a foundling, with infantile atrophy, had been in the baby ward of the Philadelphia Hospital for three and one-half months when it came under my care. It was then 5 months old, weighed 7 pounds 8 ounces, and was taking 5 ounces of a 3-6-1 mixture.[1] Since it had been in the hospital it had lost 1 pound 3 ounces. At my first visit I changed its formula to a 3-6-1.25 mixture, 6 ounces every third hour. In the next two weeks the child gained 11 ounces, but at the end of this time it began vomiting after each feeding. The percentage of fat was cut down, and the child put on a 2-6-1.5

1. Throughout this paper when the percentages of different ingredients in a milk mixture are given, it must be understood that fat, sugar and proteid are arranged in the order here stated. For example: a 3-6-1 mixture refers to 3 per cent. of fat, 6 per cent. of sugar and 1 per cent. of proteid.

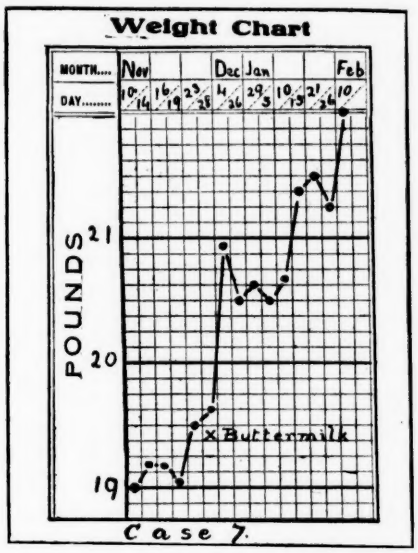
mixture, with the addition of sodium citrate (one grain to each ounce of milk and cream in the mixture). Ten days later the baby vomited less frequently and the formula was changed to a 2-6-1.75, with sodium citrate. Two days after this the baby vomited large curds after each feeding, and the stools became yellowish-green with curds. The baby had lost 6 ounces in the three days. The milk mixture was discontinued, and barley water was given for twenty-four hours, followed by whey for forty-eight hours, but as there was no improvement in three days, infant was put on the buttermilk mixture, 4 ounces every three hours. The next day there were no more curds and the stools were normal. He took the buttermilk well, and only vomited twice. The quantity was then increased to 5 ounces every three hours. Twelve days after buttermilk was started, vomiting had entirely stopped. The stools were normal, and baby had gained 18 ounces, or an average of 1½ ounces a day since taking the buttermilk.

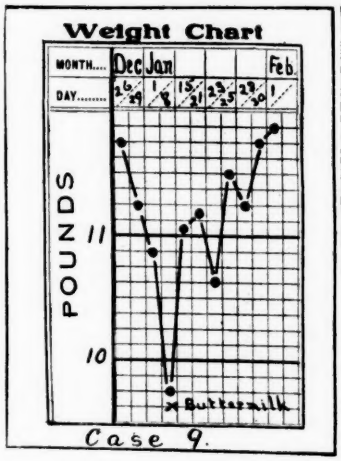
It would certainly be hard to find a more severe test to apply to any food than the test buttermilk was subjected to in this case. In brief, a 7-weeks-old foundling remaining in an asylum 3½ months developed infantile atrophy with gastroenteritis. Was put on buttermilk and a rapid recovery followed.

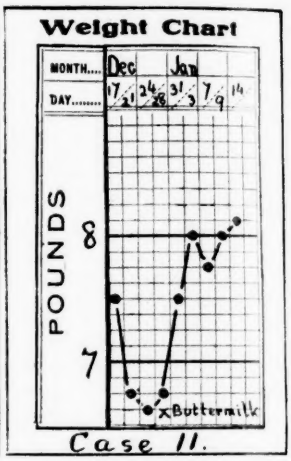
CASE 4.—C. W. W., born in the maternity of the Philadelphia Hospital, and was breast fed until transferred to the baby ward at the age of 6 weeks, weighing 7 pounds 2 ounces. It was fed on barley water 1 ounce and whey 1 ounce, with one grain of sodium citrate, but the stools were green with curds and mucus and the baby losing slightly in weight. Put on buttermilk, 3 ounces every two hours, in three days the infant gained 3 ounces, the stools were dark brown, with a few small curds, having noticeably improved. By the end of the first week baby had gained 10 ounces and stools were yellow and well digested. But on the eighth day child began vomiting and continued vomiting after every feeding. The infant became very much worse, and stools became green with curds. Put on one-half buttermilk mixture and one-half water, but did not improve, losing rapidly in weight. Vomiting persisted in spite of daily lavage. Buttermilk was discontinued and patient put on plain whey plus sodium citrate, but it lost even more rapidly than while taking buttermilk.

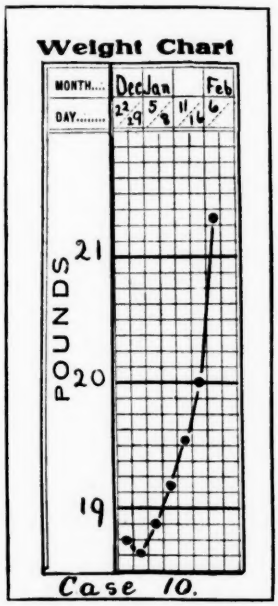
This baby was a typical case of the atrophic type seen in foundling asylums, who almost always develop acute gastroenteritis and die. The child was born in the institution and weighed at birth 7 pounds 4 ounces. Two months later, before given buttermilk, he weighed an ounce less than at birth. Buttermilk was given for three weeks; the first week the baby gained 12 ounces and in the second and third weeks together he lost 8 ounces. After the child was taken off buttermilk it went rapidly down hill.

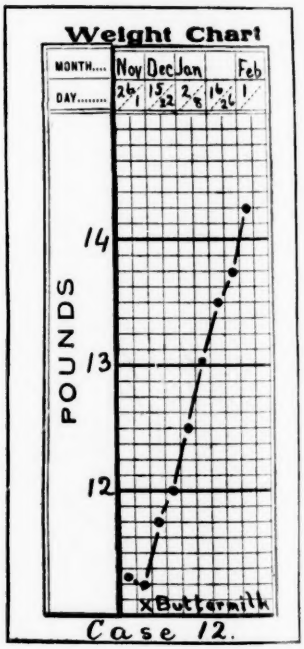
CASE 5.—P. B. B., aged 3 months when admitted to the Philadelphia Hospital. Four weeks after admission the infant developed an acute enteritis. It had been taking a 3-6-1 mixture, but now refused its feedings; up to this time it had gained 2½ ounces a week since admission. It was now put on buttermilk, and in twenty-four hours the stools were greatly improved; although previously they had been full of curds, they were now well digested. The baby took the buttermilk well and retained all of each feeding. In one week, beside having normal stools, the baby gained 1 pound 2 ounces. At the end of the second week, 2 drams of 16 per cent. cream were added to each feeding (approximately 1 per cent. of fat). A few days after the cream was added the baby began to vomit and the stools showed undigested food, containing curds and mucus. The child also lost 2 ounces in weight. The cream was discontinued and the baby ceased vomiting and the stools improved. Again in three days the buttermilk was increased to 5 ounces and 1 dram of cream (16 per cent.) added. Four days after this the stools were perfectly normal, yellow, and showed good digestion. Taking and retaining its feedings the child gained over 3 pounds in four weeks, or an average of over 12 ounces a week.











It should be remembered that this infant could not digest 1 per cent. of proteid in a regular milk mixture, but was able to digest the 2 per cent. to 3 per cent. of proteid in the buttermilk. I consider this an unusual result, especially when we remember this baby had been in an infant asylum for two months.

The reports of these five cases unfortunately cover only a short interval of time. My service expiring, I was unable to treat them for a longer time. The following are dispensary cases:

CASE 6.—L. M., aged 7 months, was brought to the dispensary Jan. 14, 1907, weighing 8 pounds 13 ounces. This was a case of infantile atrophy. The child had been fed on the breast, alternating with the bottle (¾ milk, ¼ water). Baby had not thrived since birth, always had colic with constipation. Mother gave her infant magnesia daily to relieve the constipation. Baby vomited frequently, both breast and bottle milk; while the stools contained curds. The infant was put on a milk mixture, but in three days, as it continued to lose in weight, and the bowels had not improved, it was put on the buttermilk mixture, 4 ounces every two hours, and given the breast twice during the night. Two days later the infant had gained 6 ounces. The stools were still green and offensive, but contained no mucus or curds. Baby had not vomited, so the buttermilk was increased to 5 ounces every two and one-half hours. Two weeks after taking buttermilk the child was perfectly well. Its stools were normal, and it was taking 7 ounces of the buttermilk every three hours. It had gained 36 ounces in the two weeks, or over 2½ ounces a day.

To repeat: An infant, 7 months old, weighing 8 pounds 13 ounces, suffering from infantile atrophy and with a chronic gastroenteritis, was put on buttermilk. The stools rapidly became normal, the child gaining 2½ ounces a day. This infant retained and digested buttermilk, but it could not digest or retain its mother's milk or a regular milk mixture.

CASE 7.—C. J., aged 15 months, was brought to the dispensary Nov. 7, 1906, suffering from chronic intestinal indigestion. This infant had been on condensed milk in the proportion of 3½ drams to a teacupful of water. About four weeks before coming to the dispensary the baby had two weak spells, probably convulsions. From that time on she was feverish at night, and the bowels continued loose, with curds in the stools. To be brief, the infant was brought regularly to the dispensary for three weeks before I put it on buttermilk, and during this time I was unable to feed it successfully. This 15 months' old infant could not even digest 1.75 per cent. of proteid in a skimmed milk mixture. I have never seen a child pass such large tough tenacious curds as this infant did. The stools were also green, contained mucus, and were very offensive. In twenty-four hours after taking the buttermilk mixture the character of the stools was entirely changed. They showed good digestion and were absolutely free from curds. The infant's colic, which before taking buttermilk had been very severe, ceased. In six days the baby gained 21 ounces, or 3½ ounces a day, and the stools were normal. Then the mother neglected to bring the child for three weeks, and as it lost 7 ounces in weight, one dram of 16 per cent. cream was added to each feeding of 8 ounces of the buttermilk mixture (approximately ¼ per cent. of fat). Even this small quantity of cream had to be discontinued in two days, as the bowels became loose and the stools watery. The child tired of buttermilk in three weeks and would take only two or three ounces at a feeding, so broth and white of egg were added to its diet, and a few days later, scraped meat and orange juice. The baby's bowel movements continued to show good digestion, but averaged four or five a day and still contained some mucus.

For months this child had eaten dirt and had been discovered eating coal dirt and ashes out of the coal-scuttle. It could not be expected that this child, now 1½ years old, would continue gaining on simply buttermilk, but as a temporary food in this case its effect was most striking, the improvement, as soon as it was put on buttermilk, was really wonderful.

CASE 8.—J. C., aged 5 months, was brought to the dispensary Dec. 26, 1906, with acute intestinal indigestion and rachitis. The infant had been fed since birth on condensed milk (½ teaspoonful of condensed milk in 4 ounces of water). Its mother said the baby had never been sick until four days previously, when diarrhea set in, with much tenesmus. The stools were green, offensive, and contained a good deal of mucus. The baby was put at once on the buttermilk mixture, 4 ounces every two and one-half hours, and in twenty-four hours was much better, the diarrhea was less, and the stools were becoming normal. In three days the child gained 12 ounces, and the stools were normal, although four a day. The infant was not brought to the dispensary for eighteen days, and in that time it gained 27 ounces. The baby's general condition was excellent, two normal evacuations daily, and no vomiting. It was put on 5 ounces of buttermilk and 1 dram of 16 per cent. cream, every three hours. After taking the buttermilk this baby gained 41 ounces in five weeks, or 8 ounces a week.

This infant, having acquired rickets from being fed on condensed milk for five months, developed an acute enteritis, but without putting the child on barley water for 24 hours, as I generally do in similar cases, I placed this baby directly on the buttermilk mixture, and it began immediately to improve. This case illustrates the value of buttermilk in acute intestinal disorders in infancy.

CASE 9.—E. A., aged 5 months, was brought to the dispensary Dec. 26, 1906, weighing 11¾ pounds. This was an atrophic infant with a moderate degree of rachitis. The patient had been breast fed until 3 months old, when it was put on condensed milk, which failed to nourish it, and then on a modified milk, approximately a 4-7-1.25 mixture. For five days before coming to the dispensary the infant had been vomiting after each feeding. Bowels moved three or four times a day, and there were always curds in the stools; there was much colic and flatulence. After taking barley water for twenty-four hours the child was put on a 3-6-1 mixture, alternating with the breast. One week later, as the mother had plenty of breast milk, the infant was put on breast milk exclusively. In one week on breast milk it lost 1 pound 2 ounces. In the two weeks it had been coming to the dispensary it had lost 2 pounds. It was now put on the buttermilk mixture, alternating with the breast. At first it gained rapidly, but colic continued and in a week it lost some that it had gained. The breast was then discontinued entirely, except during the night, and the child gained once more. A week later, it again lost in weight and developed all the symptoms of hereditary syphilis. It was placed on an anti-syphilitic treatment and then gained in weight. In the three weeks this atrophic, rachitic, syphilitic infant gained 2 pounds, or 10 ounces a wek.

This baby could not digest a 3-6-1 mixture, or its mother's milk, and lost rapidly while taking them. It improved when buttermilk was given alternating with the breast, but it improved still more when fed on buttermilk exclusively.

CASE 10.—J. M., aged 14 months, was brought to the dispensary Dec. 11, 1906, with an entero-colitis. The infant had been passing blood in its stools for three weeks and having bowel movements seven to eight times daily. The stools were green, and besides blood, contained mucus and curds. The child had been fed on condensed milk 1½ ounces to 6 ounces of water. This infant was put immediately on the buttermilk mixture, 6 ounces every three hours, without the usual twenty-four hours on barley water. In forty-eight hours the stools were still green, but contained no curds nor blood. The infant at this visit weighed 18¾ pounds. Three days later the child developed an acute bronchitis and its bowels moved four or five times a day, the stools containing mucus. At the end of the first week the infant had lost one ounce. It was then ordered 8 ounces of buttermilk and 2 drams of 16 per cent. cream. At the end of the second week the baby had gained 8 ounces, but stools contained some curds and were green and offensive. At the end of the third week the patient had gained 13 ounces more and its stools showed good digestion. Six weeks after taking the buttermilk mixture the stools were perfectly normal and the infant's weight was 21 pounds 5 ounces, or a gain of 42 ounces, 7 ounces a week.

Remember this child had had for 3 weeks an intense enterocolitis which was increasing in severity, and at the first visit it was placed immediately on buttermilk. I did this in order to put the buttermilk to a very severe test, and in 24 hours there was a marked improvement in the character of the stools.

CASE 11.—C. C., a 3 months' old baby, was brought to the dispensary Dec. 17, 1906, with infantile atrophy. It was breast fed until 6 weeks old, after which time it was fed on a predigested milk mixture, approximately a 1.5-6-1 mixture. The baby since being fed on this mixture had always been constipated, until three days before coming to the dispensary, when its bowels became loose, the stools showing undigested food and there was much flatulence and colic. The child weighed when first seen, 8½ pounds, but the mother said it used to weigh 9½ pounds. The infant was given a dose of oil and put on albumin water for twenty-four hours, and then on a 3-6-0.75 mixture. In one week the patient lost 14 ounces, and the stools were loose, green, contained curds, and were offensive. Baby vomited after each feeding. It was then put on buttermilk and in three days it gained 12 ounces. The baby's general condition improved greatly and its bowel movements showed good digestion, but it still vomited a little. In one week the child gained 1 pound 4 ounces. Four days later baby had lost 4 ounces because the mother had been unable on two days to obtain buttermilk, so she put the baby on the milk mixture she had given it before coming to the dispensary. The infant was only brought a couple of times after this; it was gaining slowly, but as the mother said she was unable to obtain buttermilk every day, she returned to her home in the central part of Pennsylvania, where she could get plenty of fresh buttermilk.

I do not consider it fair to attribute the slow gain during the last two weeks this case was under treatment to buttermilk, as it was not given every day. Nevertheless, the average gain in weight for the three weeks while coming to the dispensary was 8 ounces a week.

This baby could not digest .75 per cent. of calcium casein, the proteid as it occurred in the milk mixture that the child was taking before it was put on buttermilk, but at once it fully digested the 2 per cent. to 3 per cent. of casein lactate in the buttermilk mixture.

CASE 12.—M. K., a 3 months' old rachitic infant, who had been fed since birth on too strong a milk mixture, and in consequence had indigestion. It was put on a weaker mixture, but indigestion continued and the infant failed to gain in weight, losing 1 ounce. It was now put on the buttermilk mixture and the stools changed immediately, becoming smooth, yellow and well digested. The child gained 8 ounces the first week on buttermilk, and continued gaining for two months. Up to the date of writing it had gained 3 pounds, or in other words 6 ounces a week, it's weight then being 14¼ pounds.

This case is an example of an infant developing rickets and losing weight on too strong milk mixture, with fat and proteid indigestion. Improving immediately on buttermilk, gaining constantly and rapidly.

In order to give this mixture of buttermilk, cane sugar and wheat flour a fair trial, I purposely did not modify it, but used the whole buttermilk in every case, with two exceptions. There were two cases in which I diluted the buttermilk one-half with water. These were the only patients that did not perfectly digest the proteid of the buttermilk. Both were asylum infants; one was the 1-month-old baby, and the other the case of marasmus that was not successfully fed on buttermilk or on anything else.

The one way I did modify it, which is essential if the child is to be kept on buttermilk for any length of time, was by the addition of fat in the form of cream. The cream was added just as soon as it was thought the infant needed fat in its diet and could digest it. At first one-quarter of 1 per cent. of fat was added, and if this was taken well the amount of fat was increased one-half of 1 per cent. at a time as rapidly as possible. For instance, if the child was taking 4 ounces of buttermilk, 2 drams of 16 per cent. cream was added to each feeding.

SUMMARY.

The twelve infants reported varied in age from 1 month to 15 months old. The average gain in weight of the five babies treated in the Philadelphia Hospital was 7½ ounces a week. The average gain in weight of the seven babies treated at the dispensary was 8¾ ounces a week.

The average gain in weight of the entire twelve infants fed on buttermilk was 8 ounces a week.

This gain in weight is particularly of interest for the reason that every one of these twelve cases were seriously ill at the time they were put on buttermilk. I would call special attention to the five babies in an infant asylum, whose average gain was 7½ ounces a week.

CONCLUSIONS.

One advantage of buttermilk in dispensary practice is its inexpensiveness, costing in Philadelphia only 5 cents a quart.

I believe fresh buttermilk a most excellent temporary food for infants suffering from intestinal indigestion, enteritis and marasmus.

I have observed no unpleasant effects from the administration of fresh buttermilk; infants almost invariably take it well.

A few of these infants, when first put on buttermilk, vomited slightly; but in every case this ceased in a day or two, with one exception (Case 4).

Finally, the point I wish to emphasize from my brief experience is, whatever success has attended the use of buttermilk, is not so much due to the absence of fat as to the great ease with which the proteid of buttermilk is digested. I have had the opportunity to observe this in almost every one of my cases. Several who were unable to digest 0.75 per cent. of calcium casein digested perfectly the 2 per cent. to 3 per cent. of casein lactate in the buttermilk.

1805 Spruce Street.

THE PROBLEMS OF CAR SANITATION.*

THOMAS R. CROWDER, M.D.
CHICAGO.

The railway had long ago reached such a stage of activity in America that its sanitary problems became of importance. It was not until very recent years, however, that these problems were adequately or at all generally discussed. The rapid development of the means of travel gave us a new set of sanitary questions. These have been in part answered in the papers by Bracken,[1] Hurty,[2] Conn,[3] Dudley,[4] Trask,[5] Rosenau[6] and others.

* Read at the annual meeting of the American Public Health Association, Mexico City, December, 1906.

1. (a) Sanitation and Its Bearing on Certain Railway Problems, The Railway Surgeon, September, 1903. (b) Infection in Transportation, Am. Med., Aug. 12, 1905. (c) A Few Points Relating to Car Sanitation, Rep. of Am. Pub. Health Assn., 1905, xxxi.

2. (a) Passenger Coach Sanitation, The Railway Surgeon, Oct. 16, 1900. (b) Railway Sanitation, Ohio San. Bull., 1906. (c) Internat. Jour. Surg., May, 1902, p. 155.

3. (a) Report of Com. on Car Sanitation, Reports of Am. Pub. Health Assn., 1903, xxix. (b) Internat. Jour. of Surg., May, 1902, p. 152.

4. (a) The Dissemination of Tuberculosis as Affected by Railway Travel, Med. News, Dec. 16, 1905. (b) Passenger Car Ventilation System, Altoona, 1904 (Pa. R. R. Co.)

5. The Dangers of Unrestricted Traveling of Consumptives, Jour. of Assn., of Mil. Surg., 1905.

6. Internat. Jour. of Surg., May, 1902, p. 157.

That the problems presented have not yet been solved in all their relations, however, is amply proven by the great diversity of opinion still held by sanitary experts. Further investigation is needed. It is desirable to know many facts difficult of determination. But in the working out of new sanitary problems frequent orientation is necessary in order to keep them in their right relations, to apply the general principles of sanitary science, and to prevent confusion of the major and minor questions at issue. I wish to make a brief inquiry into the dangers which railway travel may hold out to the public health and to measure the influence of car hygiene in averting these dangers.

This inquiry may be directed under three general headings: First, the danger arising from the mechanical accidents; second, the danger of contracting infectious diseases; third, the danger incident to a group of miscellaneous influences, such as the rapid and variable motion, faulty ventilation, heating and lighting of cars, and the breathing of dust, smoke and engine gases.

DANGER FROM MECHANICAL ACCIDENTS.

First.—Though the first of these items—the danger from mechanical accidents—is, in its ultimate analysis, the most important, and in the broadest sense a sanitary problem, we may, for the present purpose, leave it out of consideration. In the nature of things the professional sanitarian has little to do with the measures taken to prevent such accidents. They are the special concern of the railway management, and require neither the knowledge nor the training of the physician to properly interpret and understand. The economic consideration which they involve may be trusted almost alone to work out their remedy.

DANGER FROM INFECTIOUS DISEASE.

Second.—The liability of a passenger to acquire an infectious disease during his period of travel, while a more intangible danger, is one, the protection from which is the sanitarian's special interest; and its correct interpretation requires all his technical training and his knowledge of technical facts. It covers most of the important problems of our sanitation, strictly interpreted.

We may profitably divide our consideration of this phase of the subject also into three parts: 1, The danger of infection through association, that is, by direct contagion; 2, the danger from the use in common of the facilities for comfort and convenience; 3, the danger from the infected car.

1. The association of any considerable number of persons in any confined space renders each one a possible victim of the contraction of a contagious disease. This holds true in the railway coach in the same degree that it holds true for other public places. It is increased by the railways only to the extent that they facilitate intermingling. That the average danger is in general slight and is not worthy of exerting any deterrent influence on social intercourse or travel seems to be a generally accepted opinion. It is nevertheless probable that such association is responsible for a very large proportion of the ordinary acute infections, and particularly of those affecting the air passages.

It is, of course, desirable that every effort should be made to limit as far as possible the association of the diseased with the healthy in public places. The only obvious way to accomplish this is to deny to the sick the right of mingling with the well. In case of smallpox, scarlet fever, measles, diphtheria and a few other manifestly contagious diseases we do this, depriving the affected individual of his liberty if necessary to insure his isolation. But a host of other infections, which may under certain circumstances become directly communicable, are allowed to associate at will. Consider, for instance, influenza, a disease usually prevailing in epidemic form, spreading with such remarkable rapidity as to leave no doubt of its extreme contagiousness. Produced by a bacillus known to have very little resistance to desiccation, sunlight and unfavorable temperatures,[7] to exist in large numbers in the sputum and nasal secretions of the infected, the disease is transmitted directly from man to man, and chiefly, it is supposed, by means of infected droplets expelled in coughing and sneezing. Those afflicted with influenza are very often still well enough to go about their business and their travels, and thus be spreaders of the infection. Again, it has long been recognized that mild and atypical cases of various contagious diseases are by no means rare. That scarlet fever may have no eruption, mild sore throat be really diphtheritic, that even smallpox may be mild and unrecognized, are facts which have been well established during the last decade. Indeed, we know that there is a vast number of people with unrecognized contagious disease who go about in apparent health spreading their infection. Furthermore, it is well known that virulent organisms may continue to be produced in the bodies of those infected for weeks or months after recovery from the disease, and that pathogenic organisms are frequently found even in those who have never been sick at all. How, then, is it possible to escape from the dangers incident to association? It is not possible to exclude the infected, but only the sick, and whoever is able to go about with the appearance of health will continue to be our fellow traveler.

How far is the railroad able to aid in preventing contagion from this cause by contributing to the desirable segregation of the diseased from the healthy? Dudley[4](a) has defined the situation so clearly that I quote in part his words:

> " . . . It may be urged that the railroads have no right to expose their healthy passengers to the danger of contracting diseases from others, and that they should exclude from their cars all people affected with communicable diseases. . . . While it is undoubted that the railroads have a right to exclude, and, for that matter, do exclude, from their cars people known to have contagious diseases, such, for example, as smallpox, it is entirely evident that the exercise of this right depends on correct diagnosis. To refuse transportation to a person or persons because they were suspected by the ticket agent or conductor of having a communicable disease might entail serious consequences. . . . Railroads are common carriers . . . required to perform certain public duties, prominent among which are the transportation of persons and property. It is not possible to refuse transportation except under certain well-defined conditions, and, since neither ticket agents nor conductors are, or can be from the nature of the case, physicians, it is difficult to see how, at least under present legislation, transportation is to be denied even to those who may be affected with communicable diseases. The proper remedy . . . if any remedy is possible, would seem to be in legislation making it a crime for those afflicted with certain communicable diseases to ask for or to accept transportation from common carriers."

TUBERCULOSIS.

One of the most serious diseases travelers are exposed to is tuberculosis. While we must look on this as a disease possible of direct transmission, and while its prevalence and destructiveness are appalling, public sentiment, and even the sentiment of the medical profession,

7. Ricketts: Infection and Immunity, Chicago, 1906, p. 395.

approves of granting it the right to travel. The railroads can not refuse its victims transportation as dangerous passengers in opposition to the public sentiment which permits them the freedom of all other places, public and private. While I believe it would be well to restrict the freedom of the tuberculous, still, in recognition of the possible benefit that changes of climate may have on the disease, I am not now willing to advocate preventing them from taking advantage of such travel as they are able to undertake in search of health. We are all undoubtedly more or less exposed to this widespread infection at some time in our lives, and the little more or less exposure involved in the healthseeker's travel is probably not of great consequence, the time of association being relatively short and not necessarily close. Much, however, may be done to limit the danger occasioned by the tuberculous whether in cars or elsewhere. Their danger consists in spreading their sputa about them, projecting infected droplets into the faces of others or infecting the things they use, all of which may be avoided or at least so nearly avoided by correct personal habits that the danger practically disappears. Teach the tuberculous that they are dangerous and instruct them in personal hygiene; for so long as they are permitted to associate in freedom with their healthy contemporaries they probably must also be allowed the privilege of traveling in the railway coach. The sanitarium for the tuberculous is a safe place for the well. It is made so by the patients themselves. The railway coach deserves similar protection.

This leads me naturally to speak of the often repeated proposal that special cars should be furnished for the diseased, more especially for the tuberculous. The proposal undoubtedly has great virtue, and I would say that it should be acted on forthwith if there were not what seem to me insurmountable obstacles to carrying it into effect. In the first place, there is the economic consideration. The amount of such travel will not justify furnishing special cars. These people are often —indeed, usually—too poor to pay for the extra expense entailed. Railways are economic institutions and can not be expected to furnish transportation at a loss. The state is not yet sufficiently impressed with the desirability of isolation to be willing to pay the deficit. But of even greater practical importance is the great probability that it would be impossible to get more than a small proportion of tuberculous patients into such special cars. It is not necessarily the bedridden consumptive who affords the greater danger of infecting his associates. Far more important is the patient, either unsuspecting or showing no conclusive signs of the disease to the casual observer, who would still insist on traveling as a healthy individual travels. Of this class of patients there are vastly more going about the world than of those severely sick. Only a law making it a misdemeanor for him not to declare his disease when applying for railway transportation would force him into his proper compartment; and even then, perhaps, a large proportion of them would either avoid or defy the law and take their places in the ordinary coach and sleeping car and escape detection. In its last analysis the question would remain not so much one of the car as of the habits of those who use the car.

By adopting a pessimistic view we may theorize the dangers of free social intercourse into formidable proportions. The most constant optimism can not argue it into an entirely negligible quantity. I have already expressed the opinion that direct contagion is responsible for most of the contagious diseases; but we must confess that it is a subject which it is difficult to materially alter in any other way than by education in personal hygiene which both the sick and the well should apply, or by changing public sentiment on the subject of allowing those sick of certain diseases the freedom of intercourse and travel.

THE CHANCES OF INDIRECT INFECTION.

2. What are the possibilities of indirect transmission by reason of the use in common of a car's facilities for comfort and convenience? The answer to this question goes back, in great measure, to the determination of how many travelers are afflicted with transmissible diseases or harbor pathogenic organisms—a subject which has been touched on in the consideration of direct contagion. Statistics are not at hand, and are scarcely possible of compilation, showing the proportion of the infected to the healthy among railway travelers. Yet to determine with any degree of accuracy the possibilities of danger held out by them, either from direct or indirect contagion, it would be necessary to know the proportion of the whole each disease constitutes. I do not mean to imply that knowing this would satisfactorily answer the inquiry. It would rather furnish premises from which we might hope to reason logically on the liability of transmission. It would still be necessary to establish, however, the degree to which various utensils must be contaminated before they could be said to hold out real danger of infecting the user. The contraction of disease by infection is so largely a matter of individual resistance and susceptibility that it is difficult, indeed, to draw sharp lines on its probability. The number of organisms which in one person produces disease may be innocuous to another. We may compare pathogenic bacteria to poisonous drugs and speak of a harmless, toxic and lethal dose. Theoretically I suppose it may happen that the smallest dose—a single organism—might be capable of producing a disease; but phagocytes, opsonins and other protective bodies of the human tissues are generally able to overcome considerable numbers of even the most virulent bacteria; and absolute sterility of the things we use, even freedom from pathogenic organisms, is not necessary in order for the great majority of us to escape infection.

The railway should provide facilities in keeping with the state of sanitary science and the hygienic habits of the people; it can not, however, at all times enforce their proper use; and at any stage of perfection in the facilities provided abuses are liable to occur which must be laid at the door of the public. The providing of sanitary appliances is the railroads' duty; the maintenance of sanitary conditions is largely dependent on the users. Consider the wash basin. It is much maligned, and, to a degree, justly so. It is often left abominably dirty by the user; it is much used as a receptacle for washing the teeth; it is frequently used as a cuspidor. With smooth basins and plenty of water this will entail no very great danger, perhaps—we regularly use contaminated water for bathing purposes and consider it safe —but it is, at least, a disgusting and a dirty habit. It does not arise from the conditions existing in the railway coach; it is brought there by habits formed at home, and it should be corrected at home. There is no place in the car devoted solely and especially to tooth washing, nor is there one in any other place, but there are smooth basins and plenty of water, there are cuspidors and there is a closet adjoining the lavatory. These can easily be made use of to avoid both the danger and the disgust

until some new device is especially provided for tooth washing. People generally neither try nor care to do so at this time. Before we are through with the crusade against spitting they must be taught that it is not sufficient to avoid spitting on the floor or the sidewalk, but that a wash basin is not to be used as a cuspidor and that drinking cups should be held sacred against tooth brushes.

The dangers of indirect infection in railway coaches increase theoretically, and no doubt practically as well, in proportion to the length of time a car is in service on any single trip. The longer the trip the longer the personal association of passengers, the greater their necessity of using toilet and other facilities at hand, and consequently the greater the liability of pollution. Other things being equal, the sleeping car would, therefore, be more liable to contamination than the day coach. Its average journey is longer. Other things are not equal, however, because of the constant supervision of the sleeping car en route, more care at its cleaning terminal, its average higher class of patrons, and its carrying fewer persons to the car.

It is largely in the power of railway passengers to annul on the one hand the dangers incident to their own intermingling and, on the other, whatever measures the railroad may take for their protection. They have the right to demand, nevertheless, that the railroad provide facilities whereby they may carry out to the utmost their own protection. Closets should be well flushed, perfectly emptying, and capable of easy cleaning. Lavatories should be supplied with abundance of water, well drained, trapped to prevent back flow of water and entrance of dust; the surface should be smooth and easily cleansed by rinsing and wiping. If each user would rinse and wipe out a wash basin after using it he would do no more than his hygienic duty and reduce to the vanishing point its liability of conveying infection. Small towels should be supplied in such abundance that each needs to be used but once. While the common hand towel is perhaps practically without danger, one should never be obliged to use the common face towel on account of the danger of trachoma and other eye diseases.

The common drinking cup has been much discussed and rigidly criticised of late, and orders for abolishing its use entirely have been considered by the surgeon-general of the United States Public Health and Marine-Hospital Service. It would be a sweeping reform, and the effect of such a move on the public humor can not be read in advance. For the present the railroad is obliged to furnish something in the way of a drinking cup, however, and the attempt should be to provide one with the least liability of conveying infection from lip to lip. It should have a perfectly smooth surface, outside and in, preferably made of glass to better accomplish this result and to render immediately visible gross contamination and dirtiness. It is through the medium of the common drinking cup that the closest indirect relations, from a hygienic viewpoint, are established between passengers; and it is here, perhaps, that the greatest danger of the indirect transmission of disease arises. There is considerable experimental evidence of cup contamination. A. Moeller,[8] of Berlin, has recently found tubercle bacilli, influenza bacilli, staphylococci and streptococci on the edges and in the residue remaining in communion cups. Kinyoun[9] found pneumococcus, streptococcus, staphylococcus aureus and diphtheria bacillus once each in twenty-one drinking cups from sleeping cars. Probably cups in constant or oft-repeated use are very generally infected, since mouths are always so and people generally are careless drinkers. For the most part they contain harmless bacteria (Kinyoun found but one of the organisms isolated to be really pathogenic, the diphtheria bacillus, while the pneumococcus was very slightly so); and the same number of organisms found in the wash basin would no doubt be entirely harmless; but the drinking glass comes a little too close for comfortable suspicion. Its contents gain direct entrance to the body and traverse the whole gastrointestinal tract with its vast extent of absorbing surface where some point of entrance for organisms may be found. Obviously the danger of transmission from this source is greatest in those diseases where there are lesions in the mouth, as syphilis, actinomycosis, aphtha and tonsillitis; and quite as obviously the simplest way to avoid it is for each person to carry his own drinking cup, as many do already. The railroads can scarcely be held responsible for a danger to which they do not contribute more directly than they do to this, and in which they follow a custom so generally followed and demanded by the public. The common drinking cup is universal. The evil it contains does not exist in its worst form in well-regulated cars where the cups are, or should be, frequently cleaned. There are ways of drinking from a cup which render the probability of contamination very slight. Most people are careless in this as in other personal habits. Rinsing and a clean towel will make almost any cup harmless, however, if the user cares to take so much trouble.

The drinking water should be the purest locally obtainable; it should be cooled by ice from sources of a pure supply, which should be well washed before putting into the tanks, and handled only from clean receptacles with tongs or clean gloved hands. The water cooler should be removable and cleansable and protected from possible contamination by car occupants. They should be frequently scoured and steamed. These are clear-cut duties of the railroad or car company and distinctly apart from the hygienic duties of the traveling public.

3. Hangings, linen and bedding are, in general, appurtenances of sleeping cars only. What part are they likely to play in the indirect transmission of disease? Linen may be at once dismissed from consideration, since it is always fresh to the user. So far as any single trip is concerned, the hangings and beds belong in lots to single individuals, and the consideration of their possible danger to the health of the traveler brings us to the discussion of the third element of the danger of infection in railway travel, namely, the possibility of the car itself being infected in such a way as to transmit disease to its occupants. This is dealing simply with a new phase of the question of indirect transmission of disease—indirect transmission from previous passengers or from extraneous sources.

Some investigation of this problem has been made in both this country and in Europe. The investigations of Kinyoun, above referred to, included: 1, The bacterial content of the dust from carpets; 2, the bacteria obtained from the interior furnishing of the coach; 3, the bacterial content of the air of the coach, and, 4, the bacteria of the drinking cup, already referred to.

It is worth while to review the results of these examinations. Dust was obtained from 200 cubic feet of air passing over carpets being swept, beaten or blown

8. Deutsche med. Wochschr., 1905, xlv.
9. The Bacterial Content of the Railway Coach, Med. News, July 29, 1905.

with compressed air. In seven samples so obtained many varieties of bacteria were found, principally those ordinarily found in the air. Microscopic search failed to demonstrate the tubercle bacillus among them, and animal inoculations proved its absence. The pneumococcus, staphylococcus aureus, streptococcus and colon bacillus were the only pathogens found; of these the author says, "Only the pneumococcus proved pathogenic, and this but slightly so." Some of the inoculated animals, I find from the subsequent text, however, developed abscesses from staphylococcus infections, a result to be expected, no matter what the source of the dust.

Dust was collected from the interior furnishings of twenty-nine sleeping cars, three day coaches and two smoking cars by rubbing sterile moist swabs over not less than fifteen square feet of surface. Eleven of these cars were running to health resorts during the height of the travel. Microscopic examination of these samples showed them to contain various bacteria and the ordinary elements of the dust of habitations. Of numerous samples stained for the tubercle bacillus two gave positive tinctorial and morphologic results. Sixty-four animal inoculations gave 1 positive tuberculosis, 5 pneumococcus infections, 1 diphtheria, 2 staphylococcus, 2 streptococcus, 2 colon bacillus, 1 malignant edema, 1 streptothrix, and 6 hemorrhagic septicemia. Forty-three animals gave negative results.

Realizing that the pathogenic bacteria floating in the air are of greater relative importance than those with stationary lodgment, special attention was given to their examination. Amounts of air ranging from 1,500 to 7,200 cubic feet were aspirated from forty-eight occupied coaches, twenty-seven running to and from health resorts, and its dust filtered out and subjected to analysis. The author says: "The majority of the bacteria found in the air evidently had their origin, as would naturally be expected, from the outside air." Ninety-six animal inoculations were made which resulted as follows: Tuberculosis 1, pneumococcus infection 8, staphylococcus infection 4, general septicemia 5, malignant edema 1, negative 76. The pneumococcal infections were obtained from the air of smoking cars almost entirely.

Prausnitz[10] and Petri[11] were able to demonstrate tubercle bacilli in cars carrying many consumptive patients to the health resorts of Switzerland and to Berlin during the first activity of Koch's tuberculin treatment. They were found chiefly on the floors as the result of spitting, an evil which our widespread crusades has materially lessened in the last few years.

Every space occupied by human beings is to a certain degree infected, as are all the individuals themselves. The colon bacillus, for instance, is a normal inhabitant of the human body. It appears in the intestines soon after birth and is not thereafter absent. Ordinarily it is harmless, perhaps even useful to the bodily functions, though under certain conditions it may take on virulent activities and give rise to pathologic processes. We expect to find it more or less generally distributed where human beings exist; otherwise the child would not become uniformly infected in the first few days of its life. Its existence in the railway coach is scarcely more than normal. "The pneumococcus is present in the nose, mouth and pharynx of a large percentage of individuals. . . . It persists for weeks and months in the mouths of convalescents from pneumonia, and it reaches the mouths of those who are in the vicinity of pneumonics. It is found frequently in the conjunctiva and occasionally in the deeper air passages."[12] Knowing this organism to be fairly constant in the upper respiratory passages of normal individuals, we should expect to find it fairly constant in the places they inhabit. Having but little resistance outside the body it soon dies off, but occupied places are being constantly reinfected. Concerning the unusual conditions that must arise to precipitate infection of the pulmonary tissues we have little but theories. Certain it is that attempts should be made to lessen its distribution; this can be done only by care on the part of those who harbor it.

So far as the staphylococcus is concerned, it is widely distributed in nature. We all expect to find it on our hands, consequently on the things our hands pick up. Almost as much may be said of the streptococcus. It may be usually cultivated from the normal mouth cavity. Streptothrix is also frequently found in the normal mouth and usually is harmless there. The bacillus of malignant edema is normal in garden earth, which we handle with impunity. To introduce it into the peritoneal cavity is another matter. Hemorrhagic septicemia is produced by various organisms, which are more or less widely distributed in nature, and is not ordinarily an infection easily acquired.

Diphtheria bacilli may persist in the nose and pharynx of convalescents for weeks and months, continuing long after recovery. They are frequently found in the upper air passages of healthy persons who may never have had diphtheria, but who have been in contact with the diseased. Kober[13] obtained virulent bacilli from 8 per cent. of individuals who had been in direct contact with patients, and he states that 0.83 per cent. of the people at large carry with them virulent organisms. Ustvedt[14] found 4.5 per cent. of 4,277 school children to be infected, and he quotes Geirsvold, Graham-Smith, Leegard and others as reporting percentages of infection ranging from 2 per cent. to 30 per cent. of those examined. It is furthermore well known that many sore throats of benign type are really caused by the diphtheria bacillus. Wassermann[15] has shown that the blood of a large proportion of both children and adults contains diphtheria antitoxin, even when there is no history of the disease. These facts furnish ample explanation for the finding of the organism in cars and other places where people congregate and the practical impossibility of preventing such findings. The diphtheria bacillus is an obligate parasite, having no vegetative existence outside the body. Infection takes place chiefly by direct contact. It may occur also by indirect contact or, presumably, by the dust from infected fomites, since the organism may remain virulent for a considerable period in the dried state. With the vast number of infected throats among the general population the inference of indirect contagion is not only unnecessary to explain the cases that arise, but without clear and direct evidence of such a mode of infection is scarcely a logical supposition. Though I can not accept Chapin's[16] view that

10. Münch. med. Wochschr., 1892.
11. Arb. aus d. Kais. Gesundheitsamt, 1894, 111.

12. Ricketts, loc. cit., p. 339.
13. Die Verbreitung des Diphtheriebazillus auf der Mundschleimhaut gesunder Menchen," Ztschr. f. Hyg., xxxi, 433.
14. Die Diphtherieprophylaxe und die Bedeutung der gesunden Bazillenträger für die Verbreitung der Krankheit., Ztschr. f. Hyg., 1906, lv, 147.
15. Ueber die Persönliche Disposition und die Prophylaxe gegenüber Diphtherie. Ztschr. f. Hyg., 1895, 408.
16. The Fetich of Disinfection, THE JOURNAL, Aug. 25, 1906, xlvii, 574.

infection by fomites is among the great rarities and that disinfection is unnecessary, still he has sounded a timely sentiment in urging the relative infrequence of the transmission of contagious diseases by inanimate objects, and has called attention to more fundamental, if not more important, means of control than fumigation. He quite correctly looks on the infected individual as a far more dangerous source of transmission than the things this individual has used or the place he has occupied.

In view of the fact that about 15 per cent. of all people die of tuberculosis and that 80 per cent. or 90 per cent. of autopsies show evidence of healed tuberculous lesions, and that a large proportion of the afflicted associate with the healthy and distribute their infected sputum with indifference, it is a surprising element of Kinyoun's results that he succeeded in producing the disease in only two of 160 animals inoculated. It is not surprising that car sweepings, dust and furnishings are now and then infected with the tubercle bacillus. Any public place is likely to be so. Under present conditions we must expect it. We all understand that the procedure necessary to most successfully combat the evil is to prevent spitting any place where the sun does not shine. The remedy is personal cleanliness.

The results obtained in the investigation of railway coach bacteriology up to this time are in the main what might have been expected. It is not possible, however, to draw conclusions from them which will finally establish the relations between the railway coach and disease without adding vastly to the experimental evidence which they contain. It is desirable to know something of the average absolute number of pathogenic bacteria and their relation to the whole number present, their ratio to the number of passengers and to the length of trips, the relation between the internal air and the surrounding air of the moving train, and to compare these results with those obtained by investigating other inhabited places. If the car contains only the organisms, absolute and relative, found in other similarly inhabited places, the problem then becomes one of altering conditions of infection generally; the car sinks into the relative insignificance of its small proportion of the whole and is merged in the general combat. If, on the other hand, the car is found to be burdened with pathogenic bacteria in excess of other places, it then becomes a problem calling for special methods of solution and special care in its handling. The time and labor required to determine these things is necessarily great on account of the many factors entering into the problem as it concerns the coach in transit.

It is, of course, hopeless to attempt to keep cars sterile or free from even pathogenic bacteria, nor is this necessary in order that they may be safe. In order to acquire an infectious disease we must receive organisms in sufficient quantity and of a sufficient degree of virulence. We must also have a resistance low enough to permit infection to take place, and having that we may ourselves harbor the very germs that await the critical moment.

Though we must expect most cars to contain pathogenic micro-organisms in greater or lesser numbers, it is nevertheless desirable that the railroads should take precautions to reduce them to a minimum. Good mechanical cleaning is of first importance. Remove dust, and dirt or excreta that may become dust, and most of the bacteria, grossly considered, will be removed with it. Beat or blow with an air blast the seats and carpets, outside the car if possible. It will not remove the last particle of dust, but if it is well done not enough will be raised from them in ordinary use to afford danger of infection to the car occupants. Scrub the floors, wash basins and closets and disinfect them regularly. Wipe down the woodwork. Expose bedding to the disinfecting influences of air and sunlight and to beating and blowing. If the sick have occupied coaches or sleeping cars fumigate them at the end of the run. In addition, regular fumigation at stated intervals is indicated simply as a prophylactic measure. There has been applied to the Pullman service within the past year a system embracing all these measures, and one which in my judgment meets the more important requirements for the maintenance of sanitary cars. Much labor is expended in removing dust, much time is given to sunning and airing; smoking rooms and closets, basins and cuspidors are washed daily with disinfectants; cars that have carried the sick are fumigated; all cars are fumigated monthly, and those running to health resorts weekly or oftener. The public has a supplementary duty and the members of the medical profession a complementary one; educate the social body to an appreciation of its own power of self preservation.

THE MORE INDIRECT DANGERS.

Third.—The miscellaneous influences constituting the third group of the dangers of railway travel, as I have outlined them, affect the health of car occupants only indirectly as a rule and tend to reduce resistance rather than to produce disease directly. Certain individuals have peculiar susceptibilities of the nervous system, rendering them liable to the so-called "car-sickness" during any long railroad journey. There are people, too, who almost invariably have attacks of migraine under similar conditions. It is not possible to entirely prevent these results of rapid train motion in the predisposed, though smooth roadbeds and comfortable cars probably tend to lessen the liability of their occurrence.

The ventilation of cars is a vital problem. That it has not been satisfactorily solved long ago is due to its great mechanical difficulties. The car contains, and must contain, a minimum of space for a maximum number of occupants. The swift and changing motion of the train, its constantly changing direction and wind conditions, its rapid transit from cold to warm or warm to cold regions, the necessity of changing the air frequently, the consequent great liability to draughts, and the variable sentiments of the passengers, who must all accept the same amount of air, make up a combination of conditions difficult to manage. The real difficulty arises, of course, when the outside temperature is low. Summer ventilation is scarcely a problem. We all know that cars often seem to be ill ventilated and "stuffy," but as a matter of fact, we do not know just how good or how poor is the average of car air from the chemical standpoint. A series of experiments is now under way to determine this. The results of these experiments will be made the subject of a future communication.

Remaining long in an atmosphere heavily laden with the products of respiration may produce headache, drowsiness, nausea and general malaise. Similar results may come from a close, overheated moist atmosphere, even though its chemical purity is sufficient for every hygienic demand. Indeed, recent experiments by

Flügge,[17] Heymann,[18] Paul,[19] Ercklentz[20] and others go to show that high temperature, much moisture and air stagnation are alone responsible for the deleterious influences of faulty ventilation, and that chemical impurity of the air plays no part in them except under the most extraordinary conditions. A strong opponent of this view among recent writers is Wolpert,[21] who maintains that metabolism is hindered by a much breathed atmosphere. Whatever the explanation, it seems to be certain, however, that poor ventilation is ordinarily not harmless; and that in addition to the temporary symptoms of discomfort, the long occupancy of so-called "stuffy" rooms so lowers resistance as to be conducive to the contraction of colds and perhaps also to the more serious infections. But draughts of cold air are equally depressing, and the problem is to find the means of introducing enough air to maintain comfort and not enough to produce danger from exposure.

Heating is a problem going hand in hand with ventilation. With the present means at our command it needs but care and intelligent operation to maintain a proper temperature in the closed car. With the attempt to change the air frequently, however, the difficulty is many times increased, for the reason that the entering air is so liable to great variation in amount and temperature as indicated above. If Flügge and his followers are right in their contention that the relation existing between temperature and moisture and the motion of the air are responsible for the whole of the bad effects of ill ventilation, then the problem of heating becomes relatively more important than it has heretofore been considered and ventilation relatively less important.

A certain amount of dust and smoke and locomotive gases inevitably enter the train. These are, of course, liable to great variation; but smoke and gases are not really troublesome except in passing tunnels, when they produce no more than temporary discomfort. Ordinarily only the heavier particles of smoke—the small cinders—enter the car, the lighter solid particles and the gases floating upward and away with the wind. If we are forced to breath much smoke for prolonged periods it acts as a mechanical irritant and exerts a harmful influence upon the respiratory passages. Ascher[22] of Königsberg published a series of experiments on animals showing that it both hastens the fatality of tuberculosis and predisposes to acute infections of the lungs; and he arrives at similar conclusions concerning human beings from a study of the vital statistics in relation to smoke production in the manufacturing towns of Prussia.

Ordinary dust is of more importance because it is more prevalent and because it may be infectious. It comes chiefly from the railway tracks, and their nearly universal free exposure to the sunlight makes it very probable that any pathogens will be rendered innocuous before the dust stage of their container is reached. Track contamination is probably of greater danger to the consumers of the water of streams into which sewage may be washed before it has a chance to dry than to the users of cars. The mechanical irritation of dust is, however, of some importance. It may produce mild inflammation directly, or it may lower the resistance of the mucous membranes of the respiratory passages to the point of favoring infections. Certain dusts, as those of the alkali deserts, which are soluble in the secretions, may act as chemical irritants. Sprinkling of the track with oil, as is practiced by some railroads, is, therefore, a salutary measure from a hygienic standpoint. To convert dust into something else than dust removes the difficulty in the best way, and is in the end the simplest. Of next efficiency would be some air filtering device.

It need scarcely be said, in conclusion, that it has been the author's purpose rather to define and to estimate the importance of the various problems of car sanitation than to detail their solution. That there is always a slight danger of acquiring infectious diseases in railway coaches can not be denied. That this danger is chiefly dependent on direct contagion in the close personal association of passengers seems probable, while indirect transmission through the common use of facilities for comfort or by the infected car is of secondary importance only.

An attempt has been made to show why it is that personal hygiene is a most important element in the solution of the problems of car sanitation and why the cooperation of travelers is necessary to an effective combat against the contraction of infectious diseases in cars. This statement must not be interpreted as a defense of the railway company which does not take every reasonable precaution to maintain its cars in a sanitary condition, or does not provide facilities whereby the liability of the transmission of infectious diseases may be reduced to a minimum. The duties of the railway in this regard are perfectly clear, and their fulfillment is essential to the maintenance of the public health. Bad habits in matters of personal hygiene are due largely to ignorance. It is the correction of this very general ignorance in the public at large that must supplement the best car sanitation in order to bring it to a high degree of efficiency in protecting those who travel.

17. Ueber Luftverunreingung. Wärmestanuung and Lüftung in geschlossenen Räumen., Ztschr. f. Hyg., xlix, 363.
18. Ibid., 388.
19. Die Wirkungen der Luft bewohnter Räumen., Ibid, 405.
20. Ibid, 433.
21. Ztschr. f. Hyg., l, 529 and li, 175.
22. Der Einfluss des Rauches auf die Atmungsorgane, Stuttgart, 1905.

CHRONIC ARTICULAR RHEUMATISM AND ARTHRITIS DEFORMANS.*

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BERLIN.

I wish to present some researches on the subject of chronic articular rheumatism and arthritis deformans which I have been making for a number of years, with the cooperation of my assistant, Dr. Wollenberg. By some authors, especially surgeons, chronic articular rheumatism is distinctly separated from arthritis deformans; while another group, chiefly internists, refuse to accept this distinction.

Take a concrete case, a woman of 35, affected with a chronic joint disease. The disease first involved symmetrically the joints of the fingers and toes. Slowly and without fever, the affection spread in paroxysmal attacks from the finger joints to the wrists, elbows, ankles and knees. At length the patient became entirely helpless; she was confined to an invalid chair or to her bed permanently. The disease was chronic from the beginning, no valvular affection arose and the patient did not react to salicylic acid.

What position does this affection assume in pathology?

* Abbreviation of an address delivered, February, 1907, before the Anglo-American Medical Association of Berlin.

It has been variously designated chronic articular rheumatism, arthritis nodosa, polyarthritis chronica villosa, rheumatoid arthritis, etc.

I wish to give you the proof from clinical, radiologic and pathologic-anatomic sources, that it is an affection *sui generis*, to be sharply separated from arthritis deformans. Let me designate this disease as polyarthritis chronica progressiva primitiva, or, in order to distinguish it from arthritis deformans, simply as arthritis destruens, because the destruction of the joint ends is characteristic of the disease. The term rheumatism is dropped, since there is a chronic articular rheumatism occurring as a sequela of acute articular rheumatism, but presenting in its acute or subacute onset a different clinical picture from the disease under consideration. Furthermore, I drop the term deformans, as we have not to deal with an alteration of the joint characterized by atrophy of the bone and cartilage on the one hand, and proliferation of cartilage and bone on the other, but with an actual destruction of the joint itself. We shall see that occasionally, in advanced stages of this disease, a sort of proliferation at the articular extremities may occur; in these cases we have to deal with secondary complications, absolutely not characteristic for the joint lesion.

Schneller proposed the term polyarthritis chronica villosa. This term likewise, I am sorry to say, we can not accept. Our researches have shown us that the formation of villi is not at all characteristic of our disease. Wherever irritation is present in a joint villi may be formed. We find them in arthritis deformans, in secondary articular rheumatism, in tabes, etc., and at least to as great a degree as in progressive polyarthritis.

The clinical course of arthritis deformans is so well known that I need not further deal with it. The disease begins insidiously, involving, as a rule, the larger joints, while the smaller joints are more rarely affected. While the disease has a progressive character, it does not show the progression of a polyarthritis chronica progressiva. When arthritis deformans has once reached a certain degree, the condition, as a rule, remains stationary, or may even improve. Real ankylosis never occurs in arthritis deformans, however deformed the articular extremities may be; there always arises a new joint, so that movements are still possible, although in a false direction. Rarely pseudo-ankyloses are observed, being brought about by a sort of entanglement of the new-formed bone masses with one another.

Roentgen pictures of cases of arthritis deformans are extremely characteristic. This is especially true of the knee joint, and the photograms which I show exhibit very well the changes from the beginning to the end. The first changes are seen as spur-shaped formations at the upper and lower end of the patella, which later on may give the patella a rhomboid shape. The joint cleft is at first normal, and there is no considerable atrophy of the bone. The latter fact is in contradistinction to polyarthritis chronica progressiva, in which a considerable atrophy of the bone is present quite early. At a more advanced stage the rhomboid shape of the patella is distinctly marked. Defects are seen at the condyles, which are flattened. The articular extremities of the bones approach each other, proving that the articular cartilages have been broken down.

Later the flattening of the condyles becomes more and more distinct. Lip-shaped projections at the ends of the tibia and of the femur are seen. In consequence of the atrophy of the cartilage the articular extremities seem still nearer each other and present an unsymmetrical, dentated, wavy outline.

If the joints be inflated with oxygen the soft parts of the joints are made visible, and in such an oxygen Roentgen ray picture the changes already described are seen, and in addition it is shown that the upper recessus of the joint is well preserved. There is never such a breaking down of the joint as is characteristic of polyarthritis chronica progressiva, in which an obliteration of the joint cavity is the rule.

In the clinical course of polyarthritis chronica progressiva the marked characteristics are the progressive character, its beginning in the small joints and spreading to the larger ones, deformities of various types, and especially the high grade of muscular atrophy. Skiagraphs show extremely characteristic changes.

Above all, an extraordinarily high degree of atrophy of the bone strikes us. In addition, the breaking down of the cartilage is significant. The outlines of the joints disappear, the extremities of the bones are pressed one on another, and, where the latter are lying on one another, defects and enlargements are found. These enlargements have up to date been regarded as proliferations of the bone. As a matter of fact, they are simply plastic deviations of the softened, atrophic bone, which yields too readily to deforming forces. As the articular extremities are pressed together by retraction of the ligaments, enlargements of the articular ends arise and various dislocations or subluxations are produced. Sometimes the end of one bone is telescoped into the end of the other.

Now, I wish to draw your attention to an important accessory symptom which we occasionally, although rarely, find in cases in which the atrophy of the bone is not of a high degree. In addition to the typical alterations of the finger joints at the base of the phalanx you see a slight widening of the bone, in the shape of an osteophyte formation. We have here to deal with a small new formation of bone, so that one could speak of a real arthritis deformans. You notice, however, in all pictures a character absolutely different from the real arthritis deformans. In such cases we are dealing, not with anything essential but with secondary complications. Oxygen radiograms of the knee joint show marked obliteration of the joint cavity. The superior recessus disappears almost completely, the other joint spaces are absent and the bones coalescent.

The occasional proliferations of the bone are to be looked on as examples of reparative action, which is the rule in arthritis deformans, but in progressive polyarthritis, as a rule, the vitality of the bone-cartilage tissue is so much diminished that this reaction fails. At any rate, we find in Roentgen plates opposite proportions between the extent of bone atrophy and of new formation.

The forces producing the alterations of the joints are well known to us. There is in the first place the effect of the retracting capsules. In this disease we have to deal chiefly with a pathologic process taking place in the soft parts of the joint. Subsequent to the affection of the synovialis occurs a retraction of the joint capsule. The articular extremities follow this retracting capsule, being pressed on one another, become broader and shorter. Then the action of the muscles aids the shrinking of the capsule. The extensor muscles always atrophy more than the flexors, and therefore mostly flexion-contractures arise in consequence of the flexors overweighing the extensor muscles. Furthermore, gravitation is effective as a destructive force. The well-known deviation of the fingers to the ulnar side is especially explained thereby, as the patients always hold their hands in pronation with a flexed elbow joint, so that the fingers fall by themselves into the ulnar abduction. Finally, also,

the function of the limbs plays a rôle. If you observe how the patients use their hands, you will see that they try to pick up a thing from the table by grasping it with their pronated hands; consequently, the fingers must be deviated to the ulnar side. In the same way the hyperextension in the interphalangeal points is easily explained by the patients bracing their fingers, in the use of their hands, with the tips on the table, etc.

The consideration of the Roentgen ray plates has shown us that in arthritis deformans and in chronic progressive polyarthritis we have to do with two entirely different diseases.

Entering now into the consideration of the pathologic-anatomic differences of the two affections, our researches in this direction have resulted in the following:

1. *Arthritis Deformans* (in the sense of v. Volkmann).—The pathologic process manifests itself first in the cartilage and in the bone, while the synovialis in the beginning only shows insignificant alterations. If the appearance of dentation and of proliferation at the cartilage are already well marked, we see at the synovialis only a simple hyperplasia of villi with a slight new formation of vessels and connective tissue. Only when the cartilaginous and bony parts of the joint are strongly altered, when extensive destructions, polished surfaces and glandular proliferations of the margin are present, do the above-described alterations at the synvovialis become more distinctly marked.

The inflammatory signs on the synovial membrane, however, are but slight; only rarely few small accumulations of lymphocytes occur, but never nearly as much as in the earlier stages of the primary chronic polyarthritis. On the contrary, in the later stages of arthritis deformans degenerative processes of the synovialis, especially hyaline degeneration, become more prominent. Thus the entire synovialis may be changed into a structureless, hyaline tissue. Furthermore, calcification and pigment deposits (intracellularly and extracellularly) are often found.

If we compare these alterations with other pathologic processes of the synovialis, they resemble mostly the anatomic pictures of traumatic synovial affections, which we have had frequent opportunity to observe; and we are therefore inclined to refer a great part of the anatomic alterations of the synovia in arthritis deformans to an "internal trauma," to which the synovial membrane is exposed in every movement.

2. *Primary Chronic Progressive Polyarthritis.*—The pathologic process begins here in the strictest contradistinction to arthritis deformans in the synovialis, whereas the cartilage at first shows no alteration. In the earlier stages of the disease we observe a far more marked proliferation of villi of the synovialis, a far more copious new formation of vessels, a far greater proliferation of the fixed connective tissue cells, than we meet with even in the more advanced stages of arthritis deformans; most significant, however, are large accumulations of round cells lying close to one another, representing mostly circumscribed, perivascular, lymphoma-shaped formations; in addition, we find here and there a diffuse infiltration of the tissue with lymphocytes.

These lymphoma-shaped, round-cell accumulations are also found in various other diseases of the joints, but there they are almost never so numerous and dense; of course, they are not specific, and are especially sharply distinct from tuberculous nodules. Alterations of the cartilage and of the bone are in these early stages either not present, or they have a purely regressive character, as the cartilage undergoes destruction, shows erosions, or is substituted by a pannus-shaped granulation tissue, originating from the synovia. Thus the cartilaginous surface is gradually transformed into connective tissue.

In later stages, also, apparently slight symptoms of proliferation may occur, especially in mild cases. Under the influence of the granulation tissue covering the cartilage, a slight swelling of the interstitial substance of the cartilage may arise. A real proliferation of cartilaginous cells, however, we could only find in a slight degree. At the margin of the cartilage the corticalis is perforated and granulation tissue, likewise originating from the synovialis, infiltrates the marrow cavity.

In very late stages of the affection we finally find a strong connective tissue thickening and a shrinking of the joint capsule; furthermore, a more or less complete fusion of the portions of synovialis opposite to one another and of the articular extremities. Everywhere in the neighborhood of the surfaces of fusion we find more or less copious accumulations of lymphocytes and infiltrations. The cartilage is now entirely or almost entirely broken down or substituted by connective tissue, so that often only a thin lamina of connective tissue forms the outline of the marrow cavity, since the corticalis of the bone is also extensively destroyed. The bony ends of the joint are markedly diminished in size, their spongiosa being extremely rarified and altered into scanty, very thin trabeculæ. Proliferations of the bones and of the cartilage we have not been able to ascertain.

If we compare these anatomic alterations with those of other joint diseases, a great resemblance of the lesions of the synovialis with those in infectious arthritis of a known etiology, as, for instance, in gonorrheal arthritis, is manifest.

In arthritis deformans we have to deal with a primary affection of the skeleton parts of the joint; in polyarthritis progressiva, on the contrary, with a primary affection of the soft parts of the joint. According to our statements, we must, therefore, insist on definitely separating these two forms of disease.

My classification of chronic joint diseases on an etiologic basis would therefore be as follows:

A. Non-infectious chronic joint diseases.
   1. Traumatic arthritis chronica.
   2. Irritative arthritis chronica (Hydrarthos chronicus).
   3. Constitutional or dyscratic arthritis chronica:
      (*a*) Gout; (*b*) hemophilia.
   4. Arthritis deformans:
      (*a*) Spontaneous; (*b*) reactive; (*c*) neuropathic.
   5. Functional arthritis chronica (joint-neuralgia, intermittent hydrops).

B. Infectious chronic joint-diseases.
   1. Primary infectious chronic joint-diseases:
      (*a*) Polyarthritis chronica progressiva primitiva or destruens.
   2. Secondary infectious chronic joint diseases:
      (*a*) Secondary chronic joint rheumatism following an acute joint rheumatism. (*b*) Chronic joint-diseases after acute infectious-diseases: gonorrhea, scarlatina, measles, etc.; (*c*) tuberculosis; (*d*) syphilis.

This is only an attempt to classify chronic joint diseases etiologically, for in a number of cases of the diseases concerned the etiology is still hypothetical. As long as we have nothing better, we must be content to inaugurate the progress, and progress can only be made by recognizing the etiology of our affections. In this direction, therefore, our further researches have to be carried out.

Concerning the prognosis of our disease, I do not wish to enter into details. But I would like to add some remarks on therapeutics. You all know that in these chronic diseases, besides salicylic acid and other drugs, the whole arsenal of physical therapy has been tried; hot air, massage, gymnastics, various poultices and packings, baths, etc., however, as a rule, with no great success. In arthritis deformans I have often obtained good

results with supporting apparatus for the hip as well as for the knee and for the foot, after all other means had failed. This is well known. In very much advanced cases, where even supporting apparatus did not help, I finally decided to perform the resection of the articular extremities of the hip and of the knee, and have here obtained good results.

The treatment of polyarthritis destruens is more difficult. All the measures of physical therapy have been tried unsuccessfully. I have repeatedly performed arthrectomy, especially of the knee, but with no good results beyond slight improvement in the symptoms. On the other hand, I obtained good results, that is to say, I enabled patients to walk even when contractures were far advanced, by supporting apparatus applied after stretching the contractures and fixing the legs in the stretched position. The leather must extend over the knee joints in such a way as to give them a real support. Then the patients receive side supports and by means of these and of special stretching apparatus one can gradually stretch the legs entirely straight. The supports of the knee are made movable only when the disease has improved so far that the swelling of the joints has considerably decreased and the pains have entirely disappeared. I advise, however, not to do this too early, as otherwise relapses may readily occur. I have found that it is best to assist the apparatus treatment by a course of mud baths. When the legs are stretched, the atrophied muscles are strengthened by daily massage, and finally the patients can put away their machines entirely after some years without fearing any relapse.

THE DEVELOPMENT OF CARDIAC MURMURS DURING ATTACKS OF BILIARY COLIC.*

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PHILADELPHIA.

In two cases I have had the opportunity of observing, a systolic murmur, not previously present, was heard during or soon after an attack of biliary colic. The first case was in a woman, a doctor's mother, sixty-one years of age, who had had her first attack of gallstone colic eighteen years before. I saw her in a typical seizure, the third within a few days, as a sequel to which she passed five faceted stones. At the first examination I discovered a loud, systolic murmur at the apex, which the doctor assured me had not been present before. There was no accentuation of the second pulmonic sound. The murmur persisted for nine days; the jaundice, which was pronounced, lasted only four days. After an interval of two years, during which the patient was very well, she had another attack of biliary colic with jaundice, but without murmur, and without the passage of stones. An operation, the advisability of which had been considered, was rejected. Two months later another attack occurred, and in this one the patient died. The jaundice was decided in all the attacks; the murmur was present in only one; and in only one was there any itching, and then of slight degree.

The second case I saw was with Dr. E. Lindauer, Oct. 29, 1906. The patient was a man 52 years of age, a tobacco stripper, whom I had seen some weeks previously on account of a persistent pain in the right hypochondrium; at that time his heart was normal, except for accentuation of the second aortic sound. October 20 he had a violent attack of biliary colic, followed by deep jaundice and three separate seizures of chills and fever without sweating; there was no itching. On examination I found in the mitral area a loud, blowing murmur, which Dr. Lindauer tells me he first noticed October 24. The cardiac boundary was enlarged to the left and ran outside the left nipple line; the liver extended a hand's breadth below the costal arch, but was not tender; the urine was deeply bile-stained; the feces clay-colored. A diagnosis of stone in the common duct was made. I did not see the patient again, but I am informed by Dr. Lindauer that at the operation on November 1 a large, solitary, ovoid stone was found in the common duct. The jaundice, which had been very pronounced, rapidly disappeared; the murmur is still present, although the heart outline is practically normal.[1]

In the literature there are but few references to murmurs in connection with gallstone disease or with jaundice. Gangolphe[2] calls attention to the subject and reports nine cases, of which four were examples of cholelithiasis; two were cases of emotional jaundice, so-called; two of cancer of the liver, and one of cholangitis. I will give brief summaries of these cases.

CASE 1.—Male, aged 21, two weeks before admission to the hospital, nearly lost his life in aiding an injured man. Since that time there had been malaise followed by jaundice, with tenderness in the hepatic region. There was palpitation of the heart; strong impulse; no enlargement of the boundary. A systolic murmur could be heard at the mitral and tricuspid areas. Four days later a systolic murmur developed in the aortic area transmitted into the cervical arteries; a month later the murmurs had all disappeared, and the patient left the hospital.

CASE 2.—Female, aged 31, had always been well except for repeated attacks of hepatic colic, followed by jaundice. The last attack occurred ten days previously. There was no fever, but there were slight jaundice, tenderness and a small tumor in the gall-bladder region. There was a systolic murmur at the apex, the latter being normal in position; no appreciable change could be made out in the volume of the heart; the murmur lasted twenty-two days.

CASE 3.—Female, aged 57, had cancer of the liver. There was slight jaundice. A systolic, apical murmur appeared eighteen days after entrance into hospital.

CASE 4.—Male, aged 39, had hepatic colic; subfebrile temperature and bradycardia. A systolic murmur at the base was audible in the vessels of the neck; a systolic murmur at the apex appeared coincident with the onset of the bradycardia.

CASE 5.—Female, aged 51; had emotional jaundice following fright; a systolic murmur was present at apex. Eleven days after admission to hospital the murmur was very faint and eventually disappeared entirely.

CASE 6.—Female, aged 26, had hepatic colic. A systolic murmur was present, heard best in the third interspace to the right of the sternum and was transmitted into the vessels of neck. A systolic murmur of the same quality was heard at the apex, but was not transmitted to the axilla. There was no fever; pulse was 68. Six days later the murmur and icterus grew fainter and the patient felt well and demanded her discharge.

CASE 7.—Male, aged 54, had cancer of the liver with inflammation of neighboring structures. There was fever, at first intermittent, then remittent. A systolic murmur was heard at the apex, with doubling of the first sound.

CASE 8.—Male, aged 34, had hepatic colic. He was admitted

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* Read before the Section in Medicine of the College of Physicians of Philadelphia, Dec. 10, 1906.

1. On December 19, fifty-one days after my visit, I saw the patient again. He seemed to be entirely well; the murmur had disappeared.

2. Du bruit de souffle mitral dans l'ictere, Thèse de Paris, 1875.

August 20, with jaundice and generalized itching. A systolic apical murmur appeared seven days later; the pulse then was 40. By September 7 the murmur had disappeared.

CASE 9.—Male, age not given, had catarrhal jaundice. He entered the hospital July 12 with no murmurs and temperature 39.1 C. (102.3 F.); pulse 112. On July 19 there was no fever; pulse was 70; a systolic murmur was present. July 22 pulse was 56 and the systolic murmur was loud. On July 25 the murmur was still audible; the jaundice had lessened. By July 30 the murmur had disappeared.

Fabre,[3] among eight cases of jaundice, found the heart affected in five, but gives only meager details regarding them. In an elaborate monograph Rendu[4] mentions a case of hepatic colic in which a systolic murmur appeared. A woman, aged 57, had repeated attacks of colic; in the last one dilatation of the heart with the production of a systolic murmur supervened, and ended in death. In another case of hepatic colic with jaundice there was marked arrhythmia, and in one of catarrhal icterus, a gallop rhythm without arrhythmia. Rendu also cites a case of Potain's, in which all the signs of tricuspid insufficiency were found without the classical causes for that condition. The patient had had repeated attacks of hepatic colic, and it was during one of particular violence that the signs of cardiac disturbance manifested themselves. Treatment directed to the cholelithiasis caused disappearance of all symptoms, including the tricuspid murmur. Potain[5] and Rendu both believed that the murmur had its origin in the right heart and was due to a transitory dilatation of the right ventricle.

Tessier[6] classifies the cardiac disturbances depending on gastrohepatic disease as follows: 1. Unusual loudness of the second sound. 2. Doubling of the second sound. 3. Tricuspid murmur. 4. Complete tricuspid insufficiency with venous pulse. This indicates that he, too, thinks the murmur is produced at the tricuspid valve.

Guéneau de Mussy,[7] for whom Revillout claims priority in the discovery of cardiac murmurs in jaundice, attribute the murmur to a paralyzing effect of the bile salts on the vasomotors and the general circulatory system. Gangolphe considers the principal factor to be a paralysis of the papillary muscles, while Fabre looks on myocarditis produced by the accumulation of biliary salts and acids in the blood as the essential change. Quincke,[8] who observed the murmur as well as accentuation of the second pulmonic sound, believes it to be no more frequent in icterus than in other conditions in which the general health is impaired.

There are various ways in which a murmur may be produced in cholelithiasis and jaundice.

1. By a true endocarditis, such as may readily be caused by any septic process in the hepatic region, as empyema of the gall bladder or suppurative cholangitis.
2. By anemia.
3. By altered chemism of the blood apart from anemia.
4. By dilatation of the heart and other changes in the myocardium, as e. g., paralysis of the papillary muscles.

The transitory character of the murmur, together with the absence of any signs indicating grave infective lesions in the region of the liver, renders it unlikely that the murmur is due to an acute endocarditis. Anemia can hardly be a factor of importance; the murmur comes on too early, long before any signs of grave impairment of health manifest themselves. It can scarcely be that the jaundice is responsible for the murmur in cases like those I have described, otherwise such murmurs would be more common. I have purposely examined a considerable number of jaundice cases, but have not detected a murmur in any save the two mentioned. Among them were cases of deep jaundice that had persisted for several months with decided detriment to the general health, and yet there was no murmur. Moreover, the murmur usually outlasts the jaundice. If the jaundice has nothing to do with it, do the bile acids and bile salts play any rôle? I do not think they do in the sense that they alter the chemism of the blood as anemia does, but they may cause changes in the myocardium or in the innervation of the heart, it being agreed that they are responsible for the slowing of the pulse.

One point of importance remains, namely, the *pain*, and this I hold to be the principal factor in the production of the murmur in cases of hepatic colic. The pain, which is proverbially of the most agonizing character, in the predisposed, causes dilatation of the heart with a temporary insufficiency of the mitral valve; perhaps, also, of the tricuspid. I said "in the predisposed," because if pain were the only etiologic agent, then every case of biliary colic ought to have a murmur. The heart must be potentially dilatable.

This theory, or hypothesis, fails to account for the murmur in Gangolphe's cases of emotional jaundice, and for that sometimes seen in catarrhal jaundice and in cancer of the liver. With regard to the last, I think that anemia and cachexia are an adequate explanation. What the factors are in the rather dubious emotional jaundice I am not able to say; personally I have not met with any such cases, nor have I heard the murmur in question in cases of catarrhal jaundice.

A word as to the practical importance of the murmur. If its mode of production is as I have stated, then its presence indicates that the musculature of the heart is not entirely normal, and, therefore, it enforces some caution in the choice of the anesthetic, perhaps in that of the operative technic itself. A prolonged operation might be dangerous. On the other hand, the discovery of the murmur might lead to the erroneous belief that an old endocarditis existed, a belief that would probably influence the decision of the physician or surgeon. It is evident from these considerations that the knowledge that a systolic murmur might arise *de novo* in cases of biliary colic and that it is an index of a weakened myocardium—a weakness that may not be serious—will be of value in the management of a given case.

3. Gaz. des Hôp., 1877, p. 916.
4. De l'Influence des maladies du coeur sur les maladies du foie et reciproquement, Paris, 1883.
5. Gaz. des Hôp., 1878, p. 667.
6. Progrès med., 1879, p. 725.
7. Quoted by Revillout, Gaz. des hop., 1878, 666.
8. Dis of Liver, Nothnagel's Practice, English Translation, p. 438.

TORSION OF THE GREAT OMENTUM.

WITH REPORT OF A CASE.*

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The full value of the following case has suffered by my neglect to report it when the literature on the subject was scant. It is with the hope that even this delayed report may be of value that it is now given, with some remarks on the subject based on the literature which I have been able to secure.

Patient.—Mrs. J. K. Austrian, aged 34, iii para.

* Read before the Los Angeles County Medical Society, Feb. 15, 1907.

History.—I first saw her in 1893 during an attack of acute abdominal pain and discovered an ovarian tumor about the size of an adult head. These attacks of abdominal pain were repeated at frequent intervals. In January, 1894, she had two attacks of this pain and in February three. She gradually lost strength and flesh and the tumor slowly enlarged. February 23 an unusually severe attack of the pain drove her to consent to operation.

Operation.—March 2, 1894, the abdomen was opened by a median incision six inches long, below the umbilicus. The tumor, which was intensely congested and rather firmly adherent to the parietal peritoneum and intestines, was removed with some difficulty. The pedicle was about two inches long by three inches wide, and was twisted on its long axis, from left to right. The tumor was a multilocular ovarian cyst with thick walls of a dark bluish color, and contained about one gallon of dark bluish, almost black fluid, as the result of the strangulation at the pedicle. It was noticed that the uterus was enlarged to the size of a large orange and was soft. The parietal and intestinal peritoneum was lusterless, velvety and bluish-red and the abdomen contained a small quantity of fluid. The incision was closed by through-and-through sutures of silk, and a glass drainage tube was left in for forty-eight hours. Recovery was uneventful and she left the hospital on the eighteenth day.

Postoperative History.—In April it was noticed that the uterus was enlarged, and in May it was nearly to the umbilicus. August 15 she gave birth, unattended, to a large male child. About one year after the birth of the child a hernia developed in the laparotomy wound, and in June, 1901, an abdominal binder and pad was applied. The hernia was then about the size of a small orange, easily reducible and caused little inconvenience. July 14, 1901, she found it impossible to reduce the hernia, and there was some pain, but no vomiting. On the following day the pain increased and there was no passage from the bowels. July 16 I saw her and found a fat woman, with pendulous abdomen, who appeared very sick. She had vomited that morning, and the pain in the abdomen was severe. Her pulse was 140. The hernia was about midway between the umbilicus and pubes, about the size of an orange, it was hard and tender to the touch. There was slight redness over a small area and increased local temperature. No attempt was made at reduction. She was removed to the hospital and operated on at once.

Second Operation.—The hernial sac was thickened and of a dull reddish color. The contents of the sac consisted wholly of omentum, matted into a solid mass, bluish-black in color, and adherent everywhere by recent adhesions to the sac and the hernial ring. There was no pedicle and apparently no constriction at the ring, which was about two inches in diameter. On loosening the adhesions at the ring it was found that the hernial mass was directly continuous with a mass of similar appearance within the abdomen. This intra-abdominal mass was delivered with some difficulty through the hernial ring, but without enlarging it. It was not adherent within the abdomen except at the hernial ring, and came out like a cork from a bottle, revealing a pedicle no larger than a goose quill, about two inches long and twisted several times on its long axis. The omentum proximal to the pedicle was of normal appearance, but the distal mass was intensely engorged and matted into a solid mass.

The pedicle was ligated and the mass removed. The abdomen contained considerable bloody fluid, but there was no peritonitis. Radical closure of the hernia followed and recovery was uneventful. The mass removed was in size and appearance not unlike an average placenta. No notes were taken of the number nor direction of the twists in the pedicle.

HISTORICAL.

The first mention of torsion of the omentum in the literature is the report of a case by Oberst.[1] Ten years passed before the second case was reported, that of Demons.[2] A silence of five years was followed by the report of Bayer,[3] of Monod[4] and Eiselsberg.[5] In 1899 Eitel of Minnesota[6] reported a case which has been included in some of the collections and excluded from others.

In 1900 the reports became more frequent, and Wiener's[7] valuable paper appeared, attracting attention to the subject in this country, by reporting a case and reviewing five cases from the literature. In 1902 Moresco[8] collected ten cases and reported one of his own. The following year Vignard and Girondeau[9] reported two cases of their own and collected twenty cases, and in the same year Rudolf[10] reported four cases from Schnitzler's clinic and collected twenty-five additional. Audier[11] in 1904 published a valuable thesis on the subject, with abstracts of twenty cases and a report of one. In 1905 Corner and Pinches,[12] in a valuable paper on the subject, were able to collect fifty-four cases from the literature up to the end of 1904, including three new ones of their own and one of Makin's, and a brief record of each of these cases was published in the St. Thomas' Hospital report for 1904.

In a very cursory review of the literature for 1905 and 1906 I have found reports of seven additional cases. The number of reported cases is now so large that a careful study of them will permit certain general conclusions to be drawn and, although Corner and Pinches have covered the subject with thoroughness in their articles, I hope that I may be able to add a little of value.

DEFINITION.

The term torsion of the omentum should include only those cases in which twisting of the omentum on itself has caused a sufficient obstruction of the circulation to produce evidences of strangulation. The matting of the omentum into a mass or ball which precedes the torsion, although a part of the pathologic process, should not by itself be included under this term. Strangulation from any other cause than the twisting of the omentum on itself should also be excluded.

CLASSIFICATION.

A sufficient number of well-described cases have been reported to permit a division into well-defined clinical and pathologic groups. A strictly clinical division into acute and chronic is warranted from the varying intensity of the symptoms which attract attention to the condition, although the pathologic changes which precede the appearance of the symptoms of strangulation are probably always chronic.

Among the chronic cases should be included those in which the torsion of the omentum has occurred gradually or has not reached such a degree as to cause great obstruction to the circulation. The venous return only is obstructed, as is evidenced by venous engorgement and edema, but with the production of no acute symptoms of strangulation.

The number of chronic cases yet reported is small, and they are of secondary interest as compared with the larger class of acute cases, which are characterized by sudden onset and symptoms of acute strangulation.

1. Centrbl. f. Chir., 1882, xxvii.
2. Rev. de Chir., 1893.
3. Centrbl. f. Chir., 1898, xvii.
4. Thèse de Requier, 1898.
5. Deutsch. med. Wochschr., 1898.
6. N. Y. Med. Rec., May, 1899.
7. Ann. of Surg., 1900.
8. Gazz. degli ospedali e delle clin., 1902, lxix.
9. Arch. provincial de Chir., 1903.
10. Wien. klin. Rundschau, 1903.
11. Thèse de Lyon, 1904.
12. American Jour. Med. Sci., August, 1905.

ANATOMICO-PATHOLOGIC CLASSIFICATION.

A study of the reported cases suggests a convenient classification from an anatomico-pathologic standpoint into two main groups, according as the point of torsion is within the sac of a hernia, or within the abdominal cavity. As some reported cases combine the two conditions, we may make a third class and divide all the cases into three groups:

1. Torsio Omentalis Intrahernialis.
2. Torsio Omentalis Intra-abdominalis.
3. Torsio Omentalis Intrahernialis et Intra-abdominalis.

In the first group are included those cases in which the point of torsion lies, at least in part, within the sac of a hernia, and the whole mass of strangulated omentum lies outside of the general abdominal cavity and within the hernial sac (Fig. 1). The cases of this group are distinguished from strangulated epiplocele only by the absence of constriction at the hernial ring and by the presence of a twisted pedicle. The number of reported cases which may be included in this class is not large, but it is probably of fairly frequent occurrence, and has been mistaken for strangulated epiplocele. This same remark will apply with equal force to volvulus of the intestine, and Corner and Pinches have drawn attention to the frequency with which volvulus in strangulated intestinal hernia is found if sought for.

The second group, or intra-abdominal torsion, is characterized by the presence of a point of torsion lying altogether within the abdominal cavity (Fig. 2). The strangulated omental mass may then be found altogether within the abdominal cavity (Fig. 2, c) or partly within the abdomen and partly within the sac of a hernia (Fig. 2, d), but not constricted at the hernial ring. Those cases in which no hernia was evident, or if present had no direct connection with the omental mass, are the purest examples of this group, but neither the existence or non-existence of a hernia, nor the presence or absence of part of the omental mass in the hernial sac are the distinguishing features of this class, according to my definition. It is not the situation of the omental mass, but the location of the point of torsion which determines the class. This class contains by far the largest number of the reported cases, as attention is attracted to the uncommon condition of strangulated omentum, within the abdominal cavity, and the mechanism of the third class being more complicated, its actual frequency must be less.

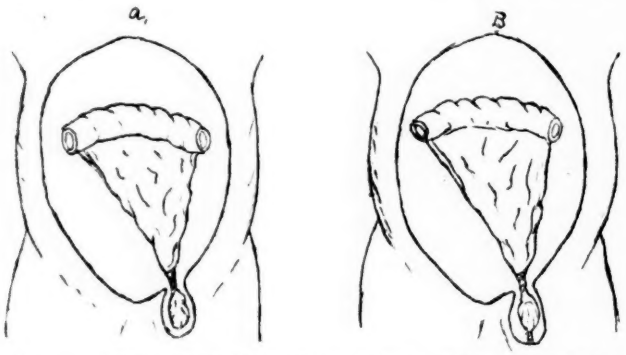

Fig. 1.—Torsio omentalis intra-hernialis: a, about one point; b, about two points.

The third class comprises those cases in which there exist two points of torsion, one lying within the cavity of the abdomen and one at least partially within the sac of a hernia (Fig. 3). There will thus be formed one (Fig. 3, g) or two (Fig. 3, h) strangulated masses of omentum according to the location of the distal point of torsion.

These three classes of torsion are based on the conditions as found at operation or autopsy in the published cases, but these conditions do not necessarily indicate the position of the omentum at the time of torsion, as classes one or three may be converted into class two by reduction of the omentum from the hernial sac into the abdomen, and the possibility of extrusion of an intra-abdominal mass into a hernial sac, after strangulation has occurred, is admissible.

As a subdivision of these main classes the classification of Vignard and Girondeau[9] is useful as an indication of the mechanism of the torsion. They divide the cases into three groups according to the number and nature of the point of torsion.

Class A.—Torsion about one point alone.
Class B.—Torsion about two separate points.
Class C.—Complex torsion.

In Class A, torsion about one point alone, are placed those cases in which the omentum has described one or more revolutions on a vertical axis about one fixed point. There is thus found but one pedicle which may be intra-abdominal (Fig. 2, c and d) or intrahernial (Fig. 1, a), and but one strangulated mass. The majority of reported cases belong to this class.

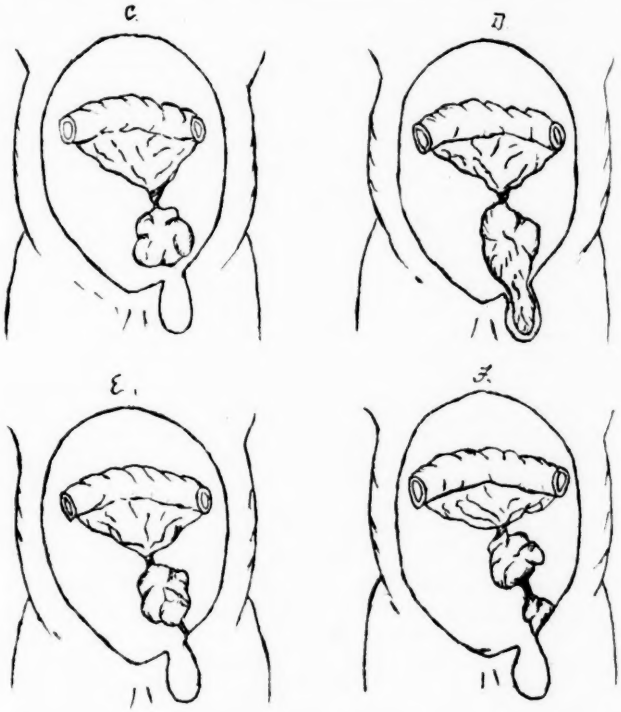

Fig. 2.—Torsio omentalis intra-abdominalis; c and d, about one point; e and f, about two points.

In the cases of Class B the revolutions have taken place about two fixed points, and two pedicles are found, both of which may lie in the abdomen (Fig. 2, e and f), or both within a hernia (Fig. 1, b), or, as has been frequently the case, one may be intra-abdominal and one at least partly within the sac of a hernia (Fig. 3, g and h).

In these cases one or two strangulated masses are formed according to the mechanism of the torsion.

If the distal extremity of the omentum is attached by a small area to some fixed point the omentum is divided into but two parts, a proximal normal part and a distal strangulated mass, the latter being attached by

one pedicle to the normal omentum and by a second pedicle to some fixed point within the abdomen (Fig. 2 e), or in the sac of a hernia (Fig. 3, h). But if the area of adhesions to the distal fixed point is large the omentum is divided into three portions, a proximal normal portion, a central strangulated mass connected by one pedicle to the normal omentum and by a distal pedicle to a second likewise strangulated mass, which may be intra-abdominal (Fig. 2, f) or intra-hernial (Fig. 3, g). Several cases of this class are recorded.

Cases of the third class or complex torsion are more complicated in their mechanism, as the strangulation is produced by knotting or twisting of separated shreds of omentum about each other (Fig. 4, k), or of one shred about the main omental mass (Fig. 4, i). But few cases of this class are recorded. They may be either abdominal or hernial in type.

ETIOLOGY AND MECHANISM.

The normal great omentum hangs down like an apron in front of the intestines and is attached by a broad base to the transverse colon and stomach, the distal extremity hanging free within the abdominal cavity subject to movements imparted to it from the intestines and other abdominal organs and to influences from without, with probably also an independent movement of its own. Should the free extremity of the omentum become

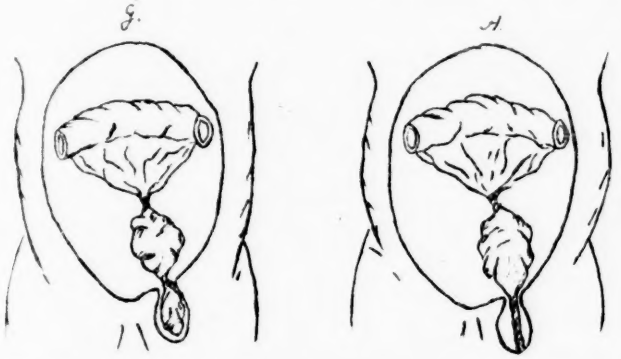

Fig. 3.—Torsio omentalis intra-hernialis et intra-abdominalis.

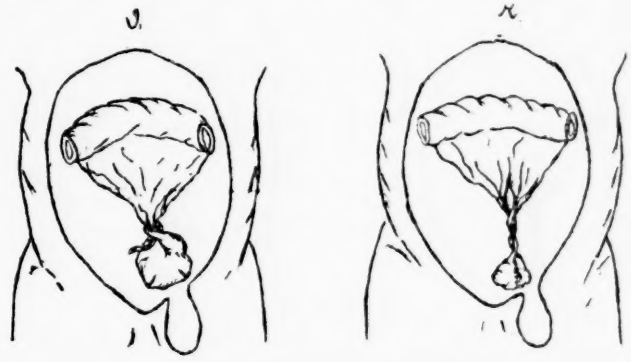

Fig. 4.—Torsio omentalis complexa.

thickened or matted into a mass or ball we would have conditions favorable to a torsion, analogous to those of a triangular piece of cloth attached by its base to a fixed point with a weight hanging from its apex (Fig. 2, e). If the free extremity should become adherent to any fixed point, as so frequently occurs, we would have a condition analogous to a triangular cloth attached by its base and apex, each to a fixed point, around which the intervening portion could rotate on its long axis (Fig. 2, e). In this case there would be formed two pedicles and either one or two strangulated portions, according as the attachment of the apex was over a large or small area (Fig. 2, e and f; Fig. 3, g and h).

The conditions necessary for the production of an omental torsion are, therefore, the formation of a mass of matted omentum at its free extremity or the formation of a second fixed point by adhesions of the free end to some other structure.

That a hernia is the most frequent factor in the production of these conditions is evidenced by the frequency with which its presence is mentioned in the reported cases. In but six of the fifty-four cases collected by Corner and Pinches[12] was the presence of a hernia denied. Even in these cases doubt is thrown on the actual absence of a hernia, by a recent observation of Riedel's.[13] In a young woman on whom he operated, with a diagnosis of acute appendicitis, an acute torsion of the omentum was discovered. There was no hernia demonstrable externally, but on carefully pulling up the omental mass the neck of a femoral hernia came into view. Further traction disengaged the tip of the omentum and it appeared in the form of a plump mass twisted once on its axis. In this case had the reduction of the hernia been accomplished before opening the abdomen, or unconsciously during the operation, as could easily happen, this case would have been reported as "no hernia." Riedel is inclined to believe, therefore, that this condition is frequently present in "no hernia" cases.

Inguinal hernia has been the variety most frequently present, but femoral, umbilical and ventral hernias are represented among the reported cases. I have been able to find mention of but one other case than my own of hernia in a laparotomy scar, that of Souligoux and Deschamps.[14] The great majority of the hernias are ancient, as one would expect, for matting and adhesions to occur. Although hernia is the cause of the vast majority of cases, the same conditions may undoubtedly be produced by other processes. The matting or balling of the free extremity may be produced by tumors or by inflammatory thickening.

Adhesion of the free end of the omentum may take place to any organ within the abdomen and torsion result. In Noble's case[15] it was adherent to the fimbriated extremity of the fallopian tube, in Peck's case[16] to the right ovary, in Wiener's case[17] to an appendix epiploica of the ascending colon and to the abdominal wall, and in Simon's second case[18] it was adherent to an ovarian tumor. The complex torsion may be produced by hernia or by inflammatory changes, causing separation of the omentum into shreds, which become twisted or knotted.

SYMPTOMATOLOGY AND DIAGNOSIS.

That the formation of a matted mass or ball of omentum is a necessary antecedent to the strangulation by torsion seems probable, for it is otherwise difficult to account for the mechanism. It is, however, not until sufficient torsion has occurred to obstruct the return circulation that symptoms of strangulation appear. The presence of the omental mass may have been unnoticed, or its presence may have been known for some time as a solid tumor within the abdomen or within the sac of a hernia, without symptoms of strangulation having appeared. If the torsion takes place slowly, or if it is of

13. Centrbl. f. Chir., 1906, vii.
14. Bull. Soc. Anat., Paris, 1901.
15. American Jour. of Obst., 1904, p. 364.
16. Med. Rec., 1900.
17. Ann. of Surg., November, 1900.
18. Münch. Med. Wochschr., 1905, xli.

a degree sufficient only to cause slight obstruction to the return circulation, the symptoms will be of a mild character. If the torsion is intra-abdominal there may be only vague discomfort with or without ascites.

If the omental mass lies in part or as a whole within a hernial sac the symptoms will be those of a mildly strangulated hernia. In the vast majority of cases the onset has been sudden and the symptoms have been those of acute strangulation, differing in no wise from those of acute strangulation of the omentum in an epiplocele. If a part or the whole of the strangulated mass lies within the hernial sac the signs also are those of strangulated epiplocele. The presence of a strangulated mass within the abdomen also adds little if any to the symptom complex, and it is only the discovery of a tumor within the abdominal cavity which distinguishes the intra-abdominal and the combined hernial and abdominal from the purely hernial cases. In Rudolf's case[19] only has a correct diagnosis been made before the operation. The most frequent diagnoses have been that of intestinal strangulation, appendicitis and peritonitis.

The only cases which admit of a probable diagnosis are those in which the presence of an old omental hernia, reducible with more or less difficulty, has called attention to the probability of a matting or balling of the omentum. If, then, symptoms of strangulation should appear a suspicion might be aroused of the real nature of the affection. If, in addition, the intrahernial mass is found to be directly continuous with a mass within the abdomen, and more especially if the intrahernial mass is reducible without relief of the symptoms, a diagnosis of reasonable probability could be made.

When torsion of the omentum becomes more widely known as a possible cause of symptoms of strangulation and is considered as a possibility in every case in which the symptoms and signs point to intestinal or omental strangulation, a correct diagnosis before operation will be more frequently made.

PROGNOSIS.

As the diagnosis has been made in but one case before operation, it is impossible to make any definite statement sustained by facts as to the mortality of this affection if left to itself. The degree of strangulation, the area of the strangulated mass, and its location, will determine the issue. That unaided recovery is possible, even in acute cases, would seem probable from what we know of strangulated epiplocele. Repeated attacks are recorded from which recovery has taken place, the nature of the attacks being unrecognized until a more severe one has led to operation, and the discovery of the probable cause of all previous symptoms. If the degree of strangulation is sufficient to cause gangrene of the omentum the probable result would be, and has been in several cases, peritonitis and death.

The results of treatment have been most satisfactory. As would be expected, the cases of early operation have, without exception, recovered. As in all cases of strangulation of abdominal organs, the mortality depends on the stage of operative intervention.

TREATMENT.

There can be but one treatment of this affection, early operation and removal of all omentum which shows signs of strangulation. Fortunately, the necessity of early operation is apparent in most of the affections for which torsion of the omentum has been mistaken. In one case, that of Eitel,[6] the twisted omentum was unrolled and allowed to remain, but this plan, even if desirable, could be followed only in such an exceptional case as his.

19. Wien. klin. Rundschau, 1903.

EXAMPLES.

I have selected from the collected reports, as far as possible, a type of each of the classes described, and a perusal of the abstracts may prove of interest.

CLASS 1.—*Torsio Omentalis Intra-Hernialis.* (Oberst.[1]) Male, aged 35. A right inguinal hernia which had existed for twelve years became irreducible two days before the operation. A diagnosis was made of irreducible hernia. At operation the sac was found to contain an omental mass, connected by a pedicle leading through the inguinal rings to the normal omentum within the abdomen (Fig. 1, a).

CLASS 2.—(a) *Torsio Omentalis Intra-Abdominalis Chronica.* As an example of the chronic form of this class, Eitel's case,[6] I think, may be cited, although Corner and Pinches[12] exclude the case, claiming that torsion was not proved.

Male, aged 44, with great abdominal ascites. Three gallons of fluid withdrawn by tapping. Twenty-four days later a second tapping withdrew two and one-half gallons, and a tumor, which was soft, movable and painless, was discovered in the abdomen. At operation three days later a tumor was exposed consisting of omentum, "rolled inward and upward, producing constriction and obstruction to the return circulation, as evidenced by enormously dilated veins." The tumor was unravelled without difficulty, and the omentum spread out over the intestines. The enlarged veins disappeared and the omentum resumed a normal appearance. The other abdominal organs were normal.

That in this case the obstruction to circulation was due to torsion seems probable, and Eitel's neglect to use the word, I think, should not exclude his case. That the ascites was due to the constricted omental circulation certainly seems probable, as it did not return after unrolling the omentum.

(b) *Torsio Omentalis Intra-Abdominalis Acuta.*—Acute intra-abdominal torsion of the omentum about one point only (Fig. 2, c) is well illustrated by the case of Simon.[18]

TYPE 1.—Male, aged 26. There was no hernia nor disposition to such, to which adhesions of the omentum could have occurred. The symptoms were such that a diagnosis of acute appendicitis was made. On opening the abdomen, one and one-half liters of bloody fluid were found. The omentum was converted into a bluish black tumor, measuring 18 cm. in length. It had but one pedicle, which was attached to the middle of the transverse colon. Resection was followed by recovery.

My own case is an example of this class, but of that variety in which a part of the strangulated mass is contained within a hernia sac (Fig. 2, d).

The variety of acute intra-abdominal torsion in which twisting occurs about two separate points (Fig. 2, e) is well illustrated by the case of Bayer.[3]

TYPE 2.—A woman, aged 54, had a left inguinal hernia for fifteen years. Following an attack of coughing there was some pain in the hernia with the sensation of a body revolving within the sac. On the following day an operation was undertaken for strangulated hernia. There was found a mass of strangulated omentum within the abdomen, attached by a proximal twisted pedicle to the transverse colon, and by a distal twisted pedicle to the abdominal wall near the mouth of the sac, both pedicles being within the abdomen. A portion of the strangulated mass had been extruded into the hernial sac.

The case of Peck[16] should probably also be included in this class, as the strangulated omental mass, which lay wholly within the abdomen, was connected proximally to the transverse colon by a tightly-twisted pedicle and was adherent distally by old adhesions to the right ovary. Simply the presence of adhesions between the omental mass and neighboring organs is not suf-

ficient to warrant the statement that torsion occurred about two points, but the presence of old adhesions makes it seem probable.

CLASS 3.—*Torsio Omentalis Intra-Abdominalis et Intra-Hernialis.* As the presence of two pedicles, one in the abdomen and one within a hernial sac, is the distinguishing feature of this class, they are all examples of torsion about two separate points, but two types may be distinguished according as the distal pedicle lies between an intra-abdominal omental mass and a second intrahernial mass (Fig. 3, g), or stretches from a single intra-abdominal mass, through the neck of a hernia to a fixed point within the sac (Fig 3, h). As an example of the first type the case of Audier[11] is typical.

Type 1.—A woman, aged 50, was operated on *in extremis* for a strangulated hernia. A mass of gangrenous omentum was found in the hernial sac. On enlarging the wound upward, this mass was found connected by a pedicle to a large mass, also strangulated, within the abdomen. This large mass was in turn connected by a second pedicle to the transverse colon. The gangrenous omentum was resected, but the patient died in collapse.

The second type in which but one strangulated mass is found (Fig. 3, h) is well illustrated by Nordmann's second case.[20]

Type 2.—A man with a right congenital inguinal hernia previously reducible developed symptoms of strangulation. In the abdomen bloody serum was found, and the omentum was adherent and thickened. The omental mass was twisted close to the transverse colon above, and a second pedicle, also twisted, led through the neck of the hernia to the testicle where it was adherent. Resection was followed by recovery.

Complex Torsion.—The examples of this ariety are few, but the case of Heitz and Bender[21] will illustrate one form of complex torsion (Fig. 4, k).

A left inguinal hernia which had been irreducible for some time, revealed on operation that the lower extremity of the omentum had become separated into two parts, which had become twisted at their bases about each other, so tightly as to cause obstruction to the circulation.

When a description of the condition known as torsion of the omentum is included in the text-books on surgery and its mechanism and symptomatology become more widely known, I believe it will prove to be a much more frequent affection than the reports indicate.

Although the number of reported cases is now above sixty, the publishing of future cases will be of value. In order to aid in the classification of cases, future reports should be exact in their description of the conditions present. The location of the point or points of torsion should be explicitly stated, and the location of the strangulated mass or masses. The presence of old adhesions of the omentum and their bearing on the mechanism should be noted. The presence or absence of a hernia should always be stated, and if no hernia is apparent, careful search of the abdomen should be made at the operation for hidden hernial sacs.

If the possibility of torsion of the omentum be borne in mind in every case in which the symptoms point to strangulation of some abdominal organ, a correct diagnosis before operation will become more frequent than has hitherto been the case.

20. Deutsche Med. Wochschr., 1903, xxviii.
21. Bull. Soc. Anat., October, 1900.

Anesthetize Patients on Operating Table.—Dr. J. T. Gwathmey, New York, states that patients should be anesthetized on the operating table, thus avoiding the lifting and jolting otherwise necessary. He declares that there is no reason why every operating table should not be fitted with wheels, thus making it possible to anesthetize the patient in an adjoining room.

Clinical Notes

ACUTE PURULENT MYOSITIS.*

A. O. SQUIER, M.D.
SPRINGFIELD, MASS.

Patient.—Dr. L. P., aged 39, consulted me at my office about 6 p. m., May 13, 1905.

History.—The patient stated the day previously he had changed the dressings of a child on whom a tracheotomy had been done for relief of tracheal obstruction due to the pressure of a purulent collection in the adjacent tissues. While doing this his patient coughed and ejected a quantity of the trachael contents, particles of which he was conscious were projected into his face, nose and throat. No immediate ill effects were observed, but about noon of the following day he began to have chilly sensations, headache and some pharyngeal soreness. The chilliness increased steadily during the afternoon, until at the time I saw him he was having a severe rigor with chattering of the teeth and general muscular quivering. Temperature, 102 F.; pulse, 106; respirations, 24. He complained of severe headache, anorexia and tendency to nausea. He was at once ordered to bed. During the succeeding twelve hours he had a short, dry, hacking cough and intense frontal and occipital headache and severe backache. His tongue was heavily coated and he complained of discomfort in right chest. He was nauseated several times during the night; very restless until 1:30 a. m., then dozed occasionally. He had a slight epistaxis at 2 a. m. and chilly sensations during the night. On the morning of May 14 he felt much improved and was inclined to consider his illness not serious. He requested to see the daily papers and proposed getting dressed and about later in the day. Temperature, 99.2 F.; pulse, 72; respirations, 20. This improved condition continued until after 3 p. m., at which time the records were as stated. He had slept at intervals during the day. About 5 p. m. he began to have chilly sensations and complained of intense muscular pain in left arm and left chest, and of severe diffuse headache and backache. At 7:45 p. m. his temperature was 103 F.; pulse, 112, and respirations, 26. At 10:30 p. m., temperature was 104 F.; pulse, 126, and respirations, 26. He slept none during that night; skin was hot and dry; had frequent nausea, and his fingers and toes were cyanotic at intervals. He was bathed frequently and liquid nourishment was given him. His urine for twenty-four hours was 19 ounces and contained a large quantity of albumin and many granular and hyalin casts.

From 6 p. m., May 14, until after noon May 17 his temperature ranged from 103.2 F. to 104.4 F. continuously. There was no regular diurnal variation, it sometimes being high in forenoon, again in afternoon or at midday or midnight. Hot sponge baths induced free perspiration for short periods. On May 15 he had five free liquid dejections following the use of elaterium. The pulse range during this time was from 106 to 120, and his respiratory rate 20 to 26. During the night of May 16 he coughed frequently, was delirious at times and had rather profuse epistaxis at 10 p. m. Slept one and one-half hours during the night.

On May 17 he complained of severe pain in region of left pectoral muscle, had persistent, dry, hacking cough, but no expectoration; suffered from intense postocular and occipital headache. Light annoyed him. He had a moderate epistaxis three times during the forenoon. Was delirious at frequent intervals during the day and perspired freely in the evening.

On May 18 at 9 a. m. consultation was held with Drs. J. H. Musser, Weiser, Keefe, Guild and Weston. Patient's temperature was 103.2 F.; pulse, 104, and respirations, 28. He had slept but about twenty minutes during the night. A most thorough examination of the chest was made, but no abnormal pulmonary or cardiac condition was demonstrable. The left pectoral muscle was somewhat indurated and exquisitely tender on palpation. Needle exploration for pus was negative. The subsequent progress of the case demonstrated the inefficiency of this method for determining the presence of pus.

* Read at regular meeting of Hampden Medical Society, Oct. 17, 1905.

Diagnosis.—Acute myositis, infective, with acute nephritis, probably also infective. The infective agent probably the pneumococcus, grippe bacillus or staphylococcus. In the endeavor to determine the infective agent careful bacteriologic examination was made by Dr. Guild of both the nasal and buccal discharges, but without demonstrating the pneumococcus. The patient was delirious the greater part of the day.

May 19: Patient slept about eight and one-half hours (induced). Complained of aching in all parts of body, with particular soreness of left chest on coughing or deep inspiration. Temperature, 102.6 F. at noon, 100.2 F. at 6 p. m.; pulse ranged from 104 to 98.

May 20: Soreness in left chest; stiffness and pain in cervical region. Temperature (high), 102.6 F. at 3 a. m.; (low), 101.2 F. at 3 p. m.; pulse, 110 to 96; respirations, 44 at 9 p. m., 26 at noon.

May 21, 22 and 23: Temperature ranged from 102 F. to 99.6 F.; pulse from 104 to 88, and respirations from 44 to 26. Slept most of the time. Had to be awakened for nourishment and medicines. Complained of general pains throughout body, and of an annoying, short, dry, hacking cough most of the time when awake, and of severe headache.

May 24: Headache continued and he complained of vertigo of subjective type, and of frequent attacks of faintness and malaise. His skin was cool, moist and clammy. Temperature, 102 F. to 99 F.; pulse from 110 to 90, and respirations from 32 to 26. During this time there was exquisite tenderness, marked redness and a tense, indurated condition in the left pectoral region. Sometimes deep palpation would indicate that there might be fluid deeply seated; again this would not be demonstrable, but the muscles felt hard and tensely drawn against the chest wall. Pain was constant in the left pectoral muscles and left arm. There was no voluntary movement of the arm because of increased pain if such movement was attempted. The forearm was flexed on the arm most of the time, this position affording the greatest degree of comfort. The arm could be moved only about two inches laterally without causing extreme pain.

May 25 to June 3 inclusive: Patient perspired freely and continuously, and the pain in his left arm was very severe and continuous. He felt extremely weak and exhausted. Had several large, loose dejections with sharp, griping pain in bowels every day. He attributed this to the milk (which had been peptonized), and for three days milk was discontinued and other forms of nourishment substituted—barley, egg albumin, chicken broth and meat powder. The dejections were apparently well digested, only two containing undigested particles. Headache was constant. He perspired freely during the night. Slept on an average eight hours every night, and from five to eight hours during the day. Had severe pain in left arm, and occasional chilly sensations. There was a distressing tendency to cough. His face was very red at intervals, being cyanotic about the nose and ears. Had more pain in arm during the last two days and less in chest wall.

On June 2 about 4 p. m. he complained of feeling cold and of having increased pain. The pain in the pectoral region was described as of a deep, boring, burning character. Some soreness of throat with constant headache and increased hebetude. Temperature ranged from 102.6 F. to 98.6 F., during most of this time being from 100 F. to 101 F. Pulse was of good volume and from 114 to 92, the greater part of the time being between 100 and 110. Respirations were from 30 to 24. For several days there had been an increasing difference of opinion between the attending physicians as to the demand for surgical intervention, and on June 3 it was determined to summon Dr. J. B. Deaver in consultation. He saw the patient at 8 a. m., June 4. It was then decided that the patient should be removed from his hotel, where he had been from the beginning of his illness, to the hospital. This was done.

Operation.—At 9 a. m., June 4, operation was done by Dr. Deaver. An incision was made from near the left coracoid process diagonally downward across the chest, following approximately, the lower border of the pectoralis major muscle to a point near the lower end of the sternum. About eight ounces of thick purulent material was evacuated. The muscle was considerably disorganized, but, as remarked by Dr. Deaver at the time, apparently not sufficiently to preclude possible restoration to comparative usefulness. Numerous pus foci were present scattered through the body of the pectoral muscles. These were evacuated, the large pectoral muscle being lifted from the chest wall and all the exposed parts thoroughly cleansed. Four counter openings were made through the skin along the line of the clavicle at the upper border of the cavity, through which large rubber drainage tubes were passed, emerging through the long incision below. The wound was then packed with gauze and the patient returned to bed. Previous to the operation the temperature was 99.8 F., the pulse 106, and the respiration 24.

Postoperative History.—Patient recovered consciousness at 10:20 a. m. The skin was cold and covered with a profuse clammy perspiration. At noon his temperature was 97.6 F., pulse 114, and respirations 20. He slept at intervals during the day. Complained of chilly sensations about 5 p. m. There was considerable serous oozing from the wound. At 9 p. m. his temperature was 103.8 F., pulse 140, and respirations 38. He perspired freely all night. Felt weak, but had no pain in arm or chest, and slept eight hours.

June 5 to 9 inclusive: At 6 a. m. of June 5 his temperature was 100.4 F., pulse 140, and respirations 34. At 6 p. m., temperature 102 F., pulse 138, and respirations 28. During the following days the diseased area was thoroughly irrigated twice daily with antiseptic solutions and packed with plain gauze. Temperature ranged from normal in the morning to 101.6 F. at night. Pulse from June 6, two days after operation, to June 10, from 98 to 110. Respirations, 24 to 30. To the date of the surgical intervention, mental depression had been a marked feature. Following the surgical measures the mental attitude changed decidedly and the patient was bright and cheerful.

June 10: Complained of more pain in left shoulder and chest, and also of great exhaustion. Had occasional chills. Temperature ranged from normal to 102 F.; pulse weaker, 116 to 128; respirations, 24 to 28.

June 11: Pain through left chest, shoulder and arm increased. Increased discharge of pus and perspired profusely, especially when asleep.

June 12: Temperature from normal to 101.2; pulse, 120 to 138; respirations, 24 to 28. This condition continued with little if any change until June 17, the patient feeling very weak and exhausted and having severe pain in left arm, shoulder and chest. Temperature, from 100 F. to 103 F. (latter at 6 p. m. both 16th and 17th); pulse, 126 to 148; respirations, 26 to 30.

Second Operation.—June 18.—At 9 a. m. temperature was 99.6, pulse 126, and respirations 26. At 6 p. m., temperature 102.6 F., pulse 124, and respirations 28. At 8 p. m., operation by Dr. Deaver, consisting of complete extirpation of the left major and minor pectoral muscles, with clearing of the axillary space which was filled with disorganized, broken-down tissue. The pectoral muscles consisted of softened, infiltrated débris, with numerous pockets of pus. The denuded surface was swabbed with pure carbolic acid, followed immediately with alcohol, and the wound was then packed with gauze saturated with alcohol. The patient was returned to bed at 8:55 p. m. in a state of collapse with no perceptible radial pulse, surface of body cold and bathed in perspiration. At 9:30 p. m. pulse was 200; at 10 p. m., 210; at 11, 180; at 12, 200; at 1 a. m., 220. Died at 1:30 a. m., without having recovered consciousness. The improvement in the pulse shortly after 10 a. m. followed the intravenous introduction of 24 ounces of physiologic salt solution.

Uranalyses.—The first quantitative analysis of the urine was made May 16 and contained 17 per cent. (by volume) of albumin, numerous other coarse, dark, granular, medium-sized casts, some hyaline casts and a few epithelial cells. Urea 10 grains to the ounce.

May 19: Albumin, 4.5 per cent (by volume).

May 26: Albumin, 1.75 per cent. (by volume). During this period the chlorids fluctuated between 1 and 2 per cent. Urea normal or slightly below.

May 30: There remained but a trace of albumin, chlorids

7 per cent., and urea 6½ grains per ounce. There were found three medium-sized hyaline casts.

June 7: Albumin entirely gone, urea 6 grains to ounce, chlorids 9 per cent. The twenty-four hour quantity fluctuated between 50 and 100 ounces, averaging 70 to 80 ounces.

Bacteriologic Examinations.—May 15: Widal test for typhoid, negative. On June 1 a blood examination showed the leucocyte count 20,650 per mm., increase confined to the polymuclear leucocytes. It was an inflammatory leucocytosis, probably septic, not enough to warrant a diagnosis of pus formation. On June 5 a bacteriologic examination of specimens of pus taken from swabs of diseased surfaces at time of operation on previous day showed only the staphylococcus pyogenes aureus.

Dietetic Treatment.—It was realized from the outset that the patient was suffering from a complication of diseases of a most serious nature. The attempt was made, therefore, to secure the assimilation of a sufficient variety and quantity of food to fully support the vital forces. To do this without overworking the renal organs added to the difficulties. The patient was supplied with, and perfectly assimilated from 2,000 to 4,000 calories of mixed foodstuffs during each twenty-four hours of his sickness. During the entire period he had but two dejections containing undigested particles in sufficient quantity to be determinable by macroscopic examination. He was so well nourished as to occasion approving comment of the professional friends who saw him.

Medicinal Treatment.—The first day he had, in divided doses, two grains of calomel, which acted mildly. On the second day he had one grain of elaterium, divided in eight doses. This was followed by free watery dejections, with immediate relief from uremic symptoms. On the fourth day he had one dose (by rectum) of 20 grains of chloral hydrate and 60 grains sodium bromid, which was followed by several hours of refreshing sleep. At this time and continuing for several days, he had 20 grains of potassium citrate every four hours, alternating with one-drop doses of a 1 per cent. solution of glonoin. From June 3 to June 10 he had no drugs. From this date until the end he had strychnin sulphate, 1/40 to 1/30 grain hypodermatically at three and four-hour intervals.

The surgical conditions and treatment have been given in detail in the history of the case.

THE BLOCKING OF AURICULAR EXTRASYSTOLES.

ALBION WALTER HEWLETT, M.D.
SAN FRANCISCO.

The newer methods of analyzing the venous pulse have enabled us to differentiate clinically a number of forms of cardiac arrhythmia that could not otherwise be properly classified. So far as I am aware, arrhythmias due to a blocking of extrasystoles on their passage from the auricles to the ventricles have not been described. I am able to report such a case here through the kindness of Dr. T. W. Huntington.

Patient.—P. C., clergyman, aged 56, entered the Lane Hospital for operation on a left inguinal hernia.

History.—His family history was excellent and his past history contained little of note. He had been twice poisoned by eating mussels, the last time five years ago, but had never had a severe illness. He habitually drank a cup of coffee in the morning, a cup of tea at noon, and an occasional glass of wine at meals; he did not use tobacco. He first noticed some irregularity of the heart three months previously. He did not know what brought it on nor what made it worse, and was conscious of his heart action only when considerably excited. He had no shortness of breath on exertion; no swelling of the feet; no attacks of dizziness; no cough, etc.

Examination.—This showed a rather nervous, fairly well-nourished man. The right pupil was slightly larger than the left; both reacted to light and on accommodation. Lungs, abdomen, and reflexes were negative.

Heart and Vessels: The point of maximum impulse was in the fifth intercostal space, 2 cm. outside of the mammary line and 12 cm. to the left of the median line. The area of cardiac dulness extended from the upper border of the third rib to 12 cm. to the left and 3 cm. to the right of the median line. The heart sounds were clear, the first being of a booming quality at the apex; the second at the pulmonary area was accentuated and reduplicated. The radial arteries were markedly thickened and contained irregular hard plates. The temporal arteries were also thickened and tortuous. Pulse: The rhythm was interrupted at times by small premature beats, followed by longer compensatory pauses; at other times there was simply a pause in the regular succession of beats without any palpable premature pulse. These pauses were sometimes so frequent as to produce for a short time a slow and perfectly regular rhythm (Fig. 2). One might have suspected that he was dealing with an ordinary case of extrasystoles, some of which produced a radial pulse, while others did not. Auscultation over the apex, however, showed complete silence during most of the intervals when no extra pulse was felt; whereas, as is well known, extrasystoles affecting the ventricles invariably give rise to a well-marked first sound.

Sphygmography.—In Figure 1 are seen tracings of the radial pulse, the apex beat, and the jugular pulse during a comparatively normal period. The duration of the normal pulse interval is about 0.85 second. The jugular tracing shows the three characteristic waves: *a*, due to the contraction of the auricle; *c*, the transmitted carotid pulse; and *v*, following the contraction of the ventricle. The regular

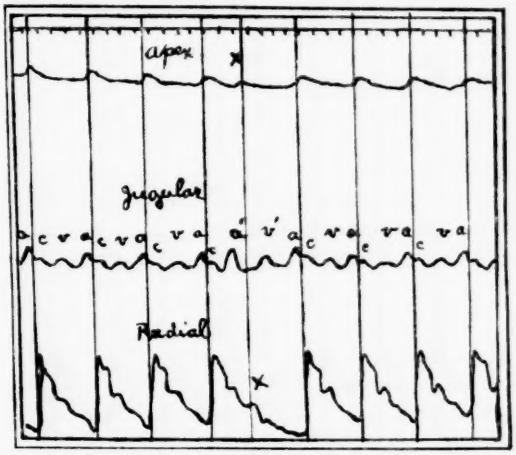

Fig. 1.—Normal pulse rate, interrupted at *x* by an extrasystole, which starts in the auricles and spreads to the ventricles.

rhythm is interrupted by an extrasystole at *x*. This extrasystole shows slightly on the rather poor apex tracing, and slightly also on the radial tracing. On the jugular tracing it is indicated by an unusually high wave *a'*, which begins a little earlier than the *v* wave, which should follow the preceding normal systole. The early occurrence of this wave and its height lead us to believe that it is due, at least in part, to a premature auricular contraction, and possibly in part to the *v* wave from the preceding normal systole. The carotid pulse following this extra-auricular contraction is so small as not to be visible on the tracing from the neck, but the radial tracing shows that a small extra pulse was present. The apex tracing and the occurrence of a *v'* wave on the jugular tracing likewise bear witness to the occurrence of an extrasystole of the ventricle. This tracing shows, therefore, a normal pulse rhythm interrupted at one point by an extrasystole. The latter originates in the auricles and spreads thence to the ventricles.

The radial pulse in Figure 2 might lead one to suspect a slow and regular heart action were it not that the apex tracing and a closer inspection of the radial tracing also demonstrate the presence of extrasystoles, *x*. It is possible to have ventricular extrasystoles interpolated between the normal beats of a slowly beating heart without there being any compensatory pauses.[1] On such an assumption the normal pulse interval in this tracing would be 1.5 seconds; but from Figure 1, which is a continuation of Figure 2, on the same piece of paper, we have

1. Pan (O.); Deutsch. Arch. f. klin. Med., lxxviii, 128.

already learned that the normal interval is 0.85 second. From a comparison with this earlier tracing, it also becomes apparent that those extrasystoles of Figure 2 involving the ventricles are exactly the same as the solitary extrasystole of Figure 1. They all originate in the auricles and spread thence to the ventricles. In two places on Figure 2, however, no extra-ventricular contractions are interposed between the normal beats. This appears not only from an inspection of the apex tracing, but from the complete absence of heart sounds previously referred to. A study of the jugular pulse shows the cause of this absence. The ordinary extrasystole in this patient shows itself on the jugular pulse by a well-marked *a'* wave, due to the premature contraction of the auricle, and also by the *c'* and *v'* waves, due to the contraction of the ventricles. During these intermissions, however, the high *a'* wave alone appears. The auricles contract prematurely, but no contraction of the ventricles follows.

The reason why the ventricle fails to contract may be studied in Figure 3, which by a fortunate coincidence shows on a rapidly moving paper the three main features of this pulse, viz.: The normal pulse, the extrasystole crossing to the ventricle, and the extrasystole that affects the auricles only. The interval between any *a* wave (contraction of the auricle) and the succeeding *c* wave (carotid pulse), the *a-c* interval, as it is called, has been taken by Mackenzie to measure the rate of transmission of the cardiac contraction wave from the auricles to the ventricles. Its normal duration is 0.2 second or less; and if it

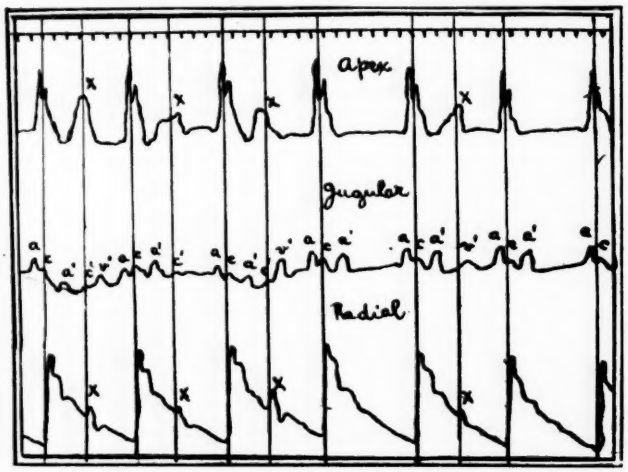

Fig. 2.—Each normal pulse is followed by an auricular extrasystole. In those marked *x* the extrasystole spreads from the auricles to the ventricles; in the remaining two the contraction wave does not affect the ventricles.

be longer than this, Mackenzie considers that the conductivity across the His bundle is impaired. The *a-c* interval for the normal beats in my patient was 0.18 second, or about normal. The *a-c* interval for the extrasystoles on the other hand was 0.35 second, a very considerable prolongation (0.17 second beyond his normal); yet the prolongation here was due only in part to a loss of conductivity. A comparison of the apex and jugular tracings shows that the interval between the beginning of the *a* wave on the jugular tracing and the beginning of the ventricular contraction on the apex tracing is 0.13 second in the normal beat and 0.21 second in the extrasystole; a lengthening of 0.08 second. The remainder of the lengthening of the *a-c* interval is due to the fact that an abnormally long time elapses between the beginning of the ventricular contraction and the beginning of the carotid pulse (prolongation of the period of ventricular tension). Thus in Figure 3, the interval between the beginning of the ventricular systole and the beginning of the normal carotid pulse is 0.05 second, while the same interval for the extrasystole is 0.14 second, a difference of 0.09 second. At least two factors tend to lengthen the period of tension, both of which depend on the early occurrence of the abnormal contraction. In the first place, the aortic pressure is highest just after any systole so that the earlier the succeeding contraction the longer it will take for the intraventricular pressure to reach such a height as to exceed the aortic pressure and to open the semilunar valves. In the second place, the contractility of the ventricle is reduced after a systole and it seems reasonable to assume that a weakened ventricle should take a longer time than a rested one to produce a certain pressure.

How are we to explain the complete absence of certain ventricular contractions? Two possibilities present themselves: 1, A lack of conductivity from the auricles to the ventricles; 2, a lack of contractility on the part of the ventricles. We have just seen that where the ventricles take part in the extrasystoles both conductivity and contractility are diminished. The diminution of conductivity is apparent from the lengthening of the interval between the contraction of the auricles and the contraction of the ventricles. The diminution of contractility is evidenced by the prolongation of the period of tension. A still further reduction of either of these might lead to a falling out of the ventricular systole; but it is difficult to decide which is actually most at fault in this patient. One fact mitigates against its being a lack of contractility. In the many times I listened to the irregular heart action I have never heard an extrasystolic first sound that was not followed by a second sound, which means that the ventricular contractions, when present, were always of sufficient force to send blood into the aorta or pulmonary artery. Had the falling out of the extrasystoles been due to a lack of contractility we should have expected to find transition systoles of such force that, although the ventricle contracted, the

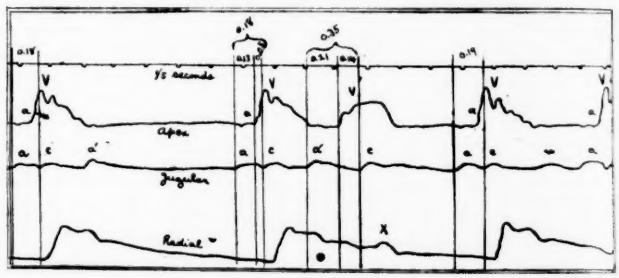

Fig. 3.—Record on a rapidly moving piece of a paper. First a normal contraction followed by an extra-auricular contraction, but not ventricular contraction; second, a normal contraction followed by an ordinary auricular extrasystole; third, a normal pulse without an extrasystole.

semilunar valves were not opened. The apparent absence of such extrasystoles causes us to favor the view that the falling out of ventricular contractions was due, not to a lack of contractility, but to a failure of impulses to cross the auriculoventricular junction.

The slowing or failure of the conduction during the extrasystoles is due to the occurrence of the latter so immediately after the preceding normal beats. The interval was not sufficiently long for the conductivity of the His bundle to return to its normal level. A similar observation has been made on hearts whose conductivity was but slightly diminished. In such hearts every contraction wave may pass from the auricles to the ventricles so long as the rate is a slow one; but if the rate becomes accelerated, one or more waves are blocked at the auriculoventricular junction.

Syncope in Biliary Colic.—Maggard, in the *Journal of the Kansas Medical Society*, states that the syncope which sometimes attends biliary colic is best treated by atropin, strychnin, normal salt solution and brandy. Ether is a valuable heart stimulant and should be injected deeply when given hypodermatically in order to prevent the severe pain which it produces when injected superficially.

AN IMPROVED AND ACCURATE METHOD OF LOCATING FOREIGN BODIES WITH THE ROENTGEN RAY.*

ROBERT CAROTHERS, M.D.
CINCINNATI.

There are living to-day many veterans of the Civil War who have carried bullets within their bodies all these years and who have experienced little or no discomfort from them. But while a foreign body within the anatomy is not always a menace to good health and it does not become necessary and imperative that it should be removed, it is undoubtedly true that foreign bodies do at times cause trouble that calls for their removal. In these days of neuroses it becomes, at times, imperative to remove a foreign body for the relief of neurasthenia, although it must be admitted that such removal does not always relieve the condition. Since the introduction of the Roentgen ray this reason for removal is on the increase. An individual who is the recipient of a foreign body does not go far before some one, either on solicitation or otherwise, makes a radiogram of the part which, in many instances, is known to either excite or increase neurasthenic symptoms, and then the foreign body must come out.

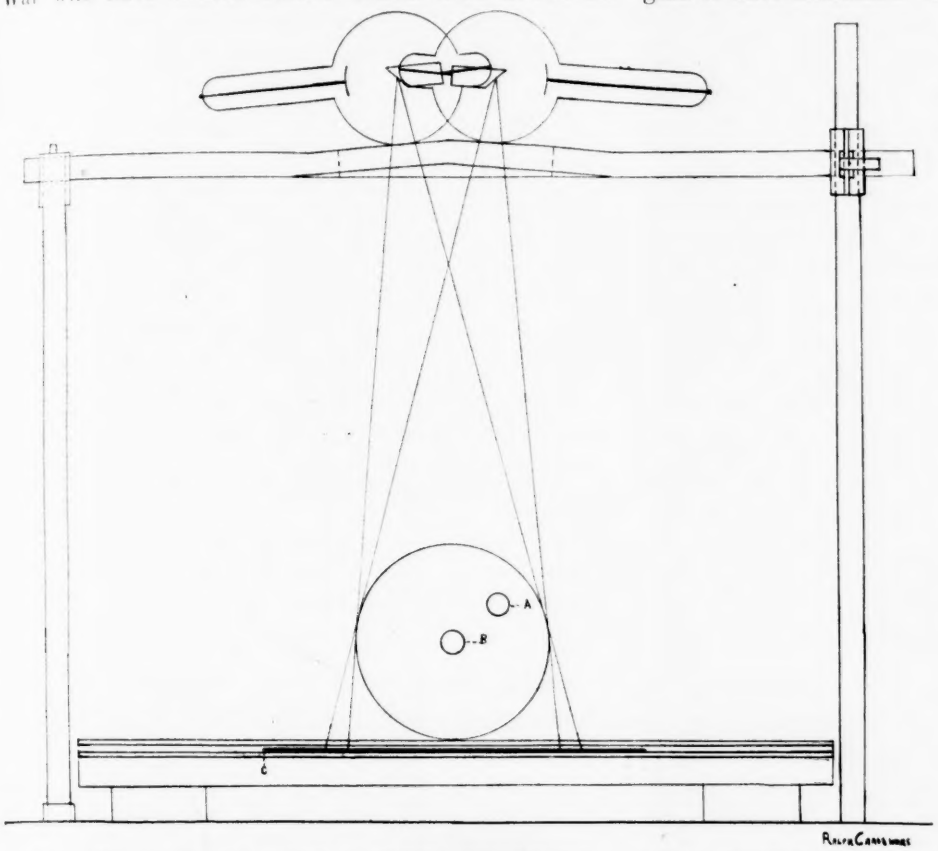

Fig. 1.—Diagram showing method of obtaining stereoskiagram. A, bullet or foreign body; B, bone; C, plate for exposure.

Asepsis is of prime importance in foreign body surgery, as also is surgical experience. It is no work for the novice. I have seen two failures by young men who, after radiograms had been made, viewed the work from a light-hearted standpoint, but in the end were glad to have assistance. Even under the most favorable circumstances it is not always easy work, leading one, not infrequently, into dangerous waters and sometimes trying to the limit one's patience. The easy cases in dexterous hands are misleading, and that coolness and equipoise a surgeon acquires from experience is much to be desired in this branch of surgery.

If the field of operation can be made dry with tourniquet or otherwise it is a decided advantage. Whatever else may be said, the most important requisite is a definite idea of the location of the foreign body. The Roentgen ray has been of untold value in supplying this requirement.

Stereoscopy as applied to skiagraphy, called stereoskiagraphy, is the most improved method and would seem to give the most accurate location of a foreign body. The object of this paper is really to demonstrate the stereoscope. This

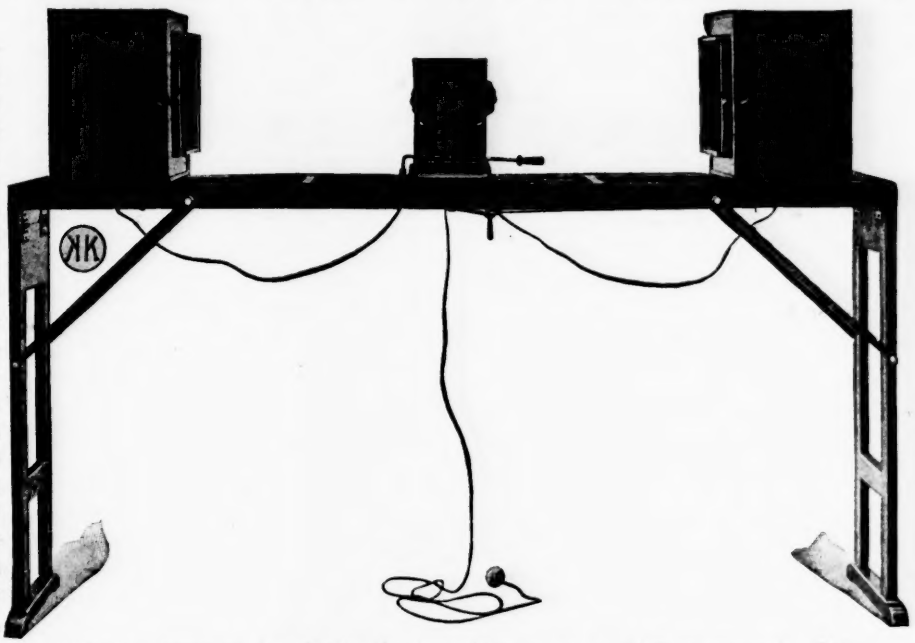

Fig. 2.—Apparatus for viewing the two plates so as to obtain stereoscopic effect.

idea has been worked up by many radiographers in different parts of the country, independent of each other; therefore, no one can claim unchallenged pri-

* Read before the Southern Surgical and Gynecological Association, Baltimore, Dec. 10, 1906.

ority. The instrument shown in the illustration was designed and made by Mr. Kelley of the Kelley-Koett Manufacturing Co., and to him I am indebted for his mechanical skill in working out crude ideas. The ordinary Roentgen ray plate looks flat. The stereoscope gives a perspective view much as if the parts (bone and bullet) were before one.

Two separate plates are made of the same part without changing in the least the position of the part skiagraphed, which is placed on the compression diaphragm table on a hollow board or plate holder with a metallic bottom, so that the rays can be partially obstructed, and in this way one plate can be removed and a second supplied. The compression diaphragm is discarded and replaced by a hollow, double-inclined plane or platform at an angle of 160 degrees. With a plumb-bob the apex of the double-inclined plane is centered through the center of the part to be skiagraphed on to the center of the plate. The plates are made with the tube in the tube holder placed eighteen inches above the plate and one and three-eighths inches to either side of this central point so that they are made from points two and three-quarter inches separated from each other, corresponding to the distance between the human eyes.

The developed plates are placed in highly-illuminated boxes facing each other and are from them reflected into two small looking-glasses which are placed at a right

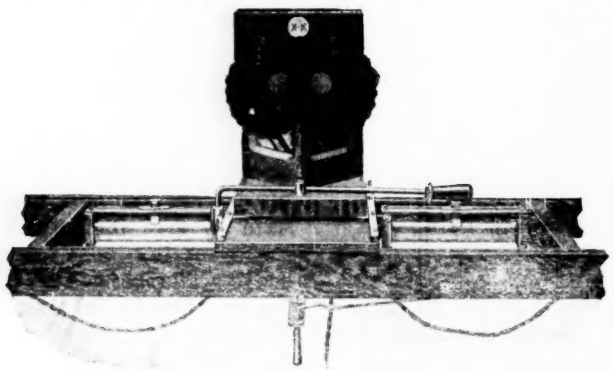

Fig. 3.—The stereoscope shown in Fig. 2, enlarged.

angle to each other with the apex of the angle placed between the eyes of the observer in the stereoscope. One now looks into the two looking-glasses; each eye in a separate glass sees a separate plate; then by adjusting the plates and the stereoscope to get an exact focus the two plates are made to look as one, giving a perspective view. This method is of especial value in locating foreign bodies in the spine, thorax and abdomen where it is impossible to get a plate, which is not flat, by any other method.

THE TREATMENT OF ABSCESSES BY PUNCTURE AND DISINFECTION WITHOUT INCISION AND DRAINAGE.

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Stimulated by the results of Bier[1] and Klapp[2] with suction and hyperemia and of Lennander[3] with his carbolic-alcohol method, I have been led to attempt a conservative treatment of localized suppurations without elaborate apparatus on the one hand and without incision and drainage on the other. The plan I followed is not a new one. It is simply a modification of older methods with a newer application. What Scott Helm,[4] Hayden[5] and others tried with buboes I modified and extended to almost every form of acute external abscess. The object was to avoid mutilating scars and protracted convalescence from extensive incisions and long-continued drainage. Briefly stated, the method is as follows:

1. After careful disinfection of the skin and under infiltration anesthesia of the most dependent portion of the abscess, the abscess is punctured with a large trocar or a pointed scalpel and the pus is gently expressed. This is superior to aspiration.

2. The cavity is then thoroughly irrigated through the trocar, which fits an ordinary 10 c.c. syringe, with a 1-1000 corrosive sublimate solution. This can be used with impunity in large quantities, as the abscess wall does not absorb. I have found this strength to be the most satisfactory.

3. The remnants of the corrosive sublimate solution are carefully expressed and the abscess cavity is partly distended with a 5 to 10 per cent. iodoform glycerin. A moist dressing with a firm pressure bandage is then applied.

In other words, the acute abscess is converted into a chronic one by more or less thorough disinfection and treated according to the principles originally laid down by Henle[6] for the management of cold abscesses.

Up to date I have treated forty-five cases of every degree and variety with rather astonishing results. Most of them were cured without scarring in four or five days. Turbid serum oozes from the puncture wound for a day or two, all signs of acute inflammation subside and the walls of the abscess cavity agglutinate. Occasionally an induration persists for about a week, but eventually this entirely disappears. Sometimes sero-pus or serum reaccumulates, but expression, or if need be, redisinfection and reinjection remedies this. Rarely is a third treatment necessary.

Although there were never any unfavorable complications, abscesses of caseous tuberculous glands did not yield well to this treatment. These generally required a secondary curetting, but were none the worse for the preliminary conservative therapy. There were four of this class in my series. All the other cases, whether of streptococcus or staphylococcus origin, particularly mammary and cervical abscesses, ran a very smooth course. The method is somewhat painful, but perfected technic will in a great measure dispose of this disadvantage. This treatment is not offered as a panacea for all acute abscesses, but I am convinced of its indications and think it worthy of trial. It is not suggested as a revolutionary measure, but the results justify the opinion that incision and drainage have been practiced hitherto in the treatment of circumscribed pus formation with unnecessary and indiscriminate ruthlessness and severity.

I am indebted to Dr. Charles Goodman, in whose department of the Mt. Sinai Dispensary I carried out my treatment, for the opportunity to give my theory a practical test.

1356 Madison Avenue.

1. Münch. med. Wochschr., 1905, lii, 201, 263, 318; Hyperaemie als Heilmittel, Leipsig, 1905.
2. Münch. med. Wochschr., 1905, lii, 740-745.
3. Beitr. z. d. klin. Chir., 1906, li, 1-22.
4. Chicago Med. Jour. and Exam. 1886, liii, 201.
5. American Jour. Med. Sci., 1895, n. s. cx, 519.
6. Beit. z. d. klin. Chir., 1898, xx, 363, 803.

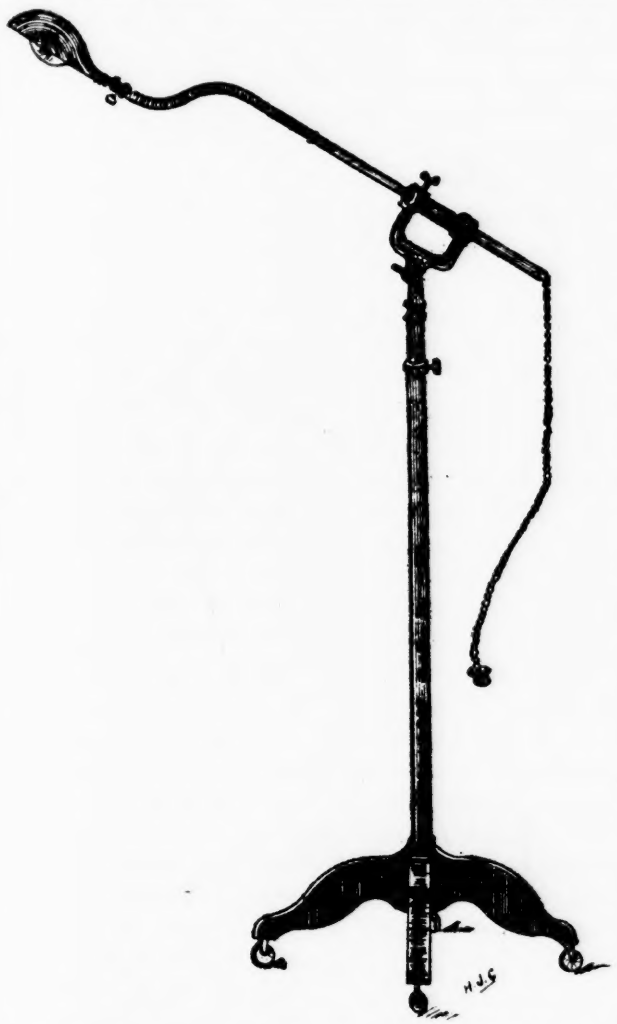
AN IMPROVED ADJUSTABLE ELECTRIC LIGHT STAND FOR OPERATING ROOMS.

GILBERT ROYCE, B.A., M.B.

Formerly House Surgeon to the Eye and Ear Departments of the New York Eye and Ear Infirmary.

TORONTO.

A feature of this standard is its universal adjustability. The whole stand can be rotated on its base. The height of the lamp can be regulated by the inner tube of the upright. The extension arm can be shortened or lengthened, tilted up or down or shortened and used vertically.

The standard consists of a heavy tripod base mounted on rubber-tired castors. Attached to this is an upright piece consisting of two tubes, one telescoping in the other, the movement of the inner tube being controlled

by a thumb screw. At the top of the inner tube a slot engages a U-shaped bracket, which can be tilted up or down and is retained in position by a winged screw. A short tube is brazed into the ends of the bracket.

The upright piece of an ordinary goose-neck electric light stand is pushed through the tube in the bracket, where it can be clamped if necessary. The flexible part of this horizontal arm is of sufficient length (eight inches) to enable one to turn the light in any desired direction.

The lamp itself is a spiral filament stereopticon of 24 candle-power with no frosting and is shaded by an aluminum reflector so fastened as to allow of its being turned about the lamp in directing the light toward any side.

This apparatus has been found especially useful in mastoid work, for which, indeed, it was originally intended. The stand is placed behind the anesthetist and the horizontal arm, covered with sterilized towels, is stretched forward over the patient, where the light, with the aid of one hand only, can be instantly and easily adjusted to illuminate the operative field or turned up toward the head-mirror of the operator. This appliance has been in use in the New York Eye and Ear Infirmary for the past year, and has given satisfaction. It is manufactured by the Hospital Supply Company of New York.

12 Carlton Street

ACUTE FRONTAL SINUSITIS.

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Although writers frequently refer to ocular phenomena occurring as complications or symptoms of disease of the accessory cavities of the nose, I report this case in order to emphasize the importance of differential diagnosis and to illustrate the fallacy of too strictly limiting one's observation to the organ which exhibits the more pronounced symptoms.

History.—A minister, aged 39, gave a history of good general health except for a chronic rhinitis of moderate degree. He had worn glasses during the past sixteen years. The latest pair proved to be lenses for the correction of simple myopia. I later found a marked degree of compound myopic astigmatism, which being corrected, greatly improved the vision. The patient had always been singularly free from the usual symptoms of eyestrain, seeking glasses only as a means of improving vision. In the latter part of the winter of 1897 he contracted a "cold" which was followed by excruciating pain at the root of the nose on the right side, extending outward along the supraorbital region and upward toward the vertex. The right eye was painful and sensitive to light. He consulted an ophthalmologist in the city where he then lived, who pronounced it "optic nerve inflammation," and proceeded to treat the eyes. After a week of almost unbearable pain, a discharge of greenish pus appeared in the right naris and relief was prompt. Almost four years later after moving to another state, a similar attack developed. In spite of the previous history, another specialist treated the eye without so much as examining the nasal cavities. Another week of suffering, a flow of pus, and it terminated as before. In February of this year I saw him for the first time. He related his history and stated that he had recently been suffering from a "cold." For two days past excruciating pain in the right inner supra-orbital and frontal regions and right eye had prevailed.

Examination.—Light pressure over the eye and frontal sinus could hardly be borne. The eye was also exceedingly sensitive to light. The vision on comparison with the fellow eye, and with test after recovery, was about what one would expect in neglected myopia with astigmatism. The fundus appearance can be described in the same way. The left nasal passage was negative except for a moderate rhinitis. The right side, however, presented more rhinitis, and the middle turbinate was turgid and had a glazed appearance.

Treatment.—After application of adrenalin and cocain an attempt was made to probe the frontal duct but it proved futile. An alkaline wash and an adrenalin spray were prescribed for nasal application. Acetanilid compound was given for pain, and atropin for its effect on the mucous membrane. He returned next day, reporting slight relief. Another attempt at probing proved successful. A small amount of pus appeared and relief was almost immediate. The turgidity of the middle turbinate and the flow of pus continued for about ten days. Absolutely no subjective symptoms have since been present.

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APPENDICITIS AND ANGINA.

According to Kretz,[1] acute phlegmonous appendicitis may be associated with acute tonsillitis, and in these cases streptococci occur as the predominating organism in the appendix, in the peritoneal exudate, and in the tonsils.

These conclusions are based on observations made after death, in cases in which the conditions were favorable for satisfactory study and all which occurred in young persons without previous attacks. The changes in the tonsils are marked: There is great swelling, pus oozes from the crypts on slight pressure, the tissue is succulent and there is edema of the surrounding structures; there is also swelling of the cervical lymph glands. Microscopically, in addition to the ordinary inflammatory changes, the tonsils show thrombosis of the lymph vessels and small fibrinous thrombi in the veins, but without purulent softening. In the cervical lymph nodes there may be large masses of cocci in the subcapsular sinuses and fibrin mixed with leucocytes and cocci in the central and efferent lymph vessels. So far as the changes in the appendix are concerned, they indicate that the process begins in the follicular tissue, whence it may extend to the peritoneum, either directly by continuity or in the form of lymphangitis in the mesentery.

As regards the route of the infection, assuming that the appendicitis is secondary to the tonsillitis, then the following possibilities must be considered: Pyogenic cocci may be pressed out of the tonsils in the act of swallowing and carried to the intestine, or the cocci may be transferred to the appendix by way of the blood. In favor of the latter as the more likely route speak the conditions already described in the tonsils and in the cervical lymph nodes, whence bacteria may pass directly into the blood (tonsillogenous bacteriemia); and the conditions in the appendix itself and the adjacent parts of the intestinal tract, especially when death ensues early, indicate clearly that the inflammation begins about minute foci of necrosis and miliary abscesses which correspond accurately in size and location to the lymphatic follicles, and which undoubtedly result from mycotic embolism, minute masses of cocci being found within the vessels in the center of the follicles. These interesting follicular foci were observed by Kretz in the cecum and also in the otherwise normal ileum.

Naturally, Kretz supports the hypothesis already advanced by others that acute appendicitis in certain cases may be the result of a general infection which originates in a streptococcal tonsillitis and angina. The localization of the bacteria in the lymphatic apparatus of the intestine may be regarded as analogous to the localization that occurs in the bone marrow in acute osteomyelitis. In these cases (14) that serve as the basis of the work there was, as stated, no evidence of previous disease in the appendix, and the course of the disease was rapid and severe. Kretz points out that in certain cases of acute appendicitis of moderate severity there may be a history of attacks of tonsillitis shortly before the appendicitis. And in several cases of subacute appendicitis examined after death Kretz found marked changes of a somewhat chronic nature in the tonsils and enlargement of the cervical lymph nodes. He suggests that when appendicitis develops some time after an attack of angina it is less dangerous because the body has had time to arrange for its defense and is, therefore, less likely to be overwhelmed by the infection.

These observations again emphasize the importance of the tonsils in the etiology of various pyogenic infections. Kretz estimates that probably one-third of fatal pyogenic infections are associated with angina as an initial lesion, and he suggests, as others have done before him, that undoubtedly many acute, more or less transitory febrile conditions are in reality mild anginal or postanginal bacteriemias. He also points out that Semmelweis really was the first to announce clearly that many apparently heterogeneous inflammations—acute endocarditis, osteomyelitis and arthritis, acute pericarditis and acute inflammations of other serous membranes—really belong together by virtue of a common mode of origin, namely, acute angina. And we now know that all these manifestations of infection may result from localizations of the same infectious agents, the most important of which undoubtedly is the streptococcus, for the entrance of which the tonsils offer specially favorable opportunities. There is need of careful systematic clinical studies of the relation of tonsillar infections to acute appendicitis in order that the special characteristics of appendicitis as a manifestation of tonsillogenous bacteriemia may become better known.

1. Verh. d. Path. Ges., 1906, x, p. 229.

TYPHOID BACILLUS BEARERS AND THE PREVENTION OF TYPHOID FEVER.

We have called attention to the investigations which have been carried on in the past few years, especially in Bavaria, bearing on the transmission of typhoid fever by apparently healthy individuals. Such cases have been shown, as the work has progressed, to be not infrequent. The Germans call them *Typhusbacillentraeger,* but in the absence of precedent in our own language for the manufacture of such compound words we must call

them typhoid bacillus carriers or bearers. In a certain small district in Bavaria bacteriologic examinations of the discharges have shown over fifty infected persons. When we consider how difficult it is to trace epidemic outbreaks of typhoid to their source, the importance of such individuals becomes apparent. In the recent Scranton epidemic, for example, evidence showed plainly enough that a certain water supply was infected, but no record of a typhoid fever patient being in a situation to affect the supply was obtained after the most careful search. Doubtless some "bacillus bearer" who felt, and, in fact, was, in good health carried the infection. Epidemics aside, small sporadic outbreaks of typhoid fever, such as occur in hospitals for the insane, and house outbreaks in remote country places, have usually been very difficult to follow to their source. Here, again the bacillus bearer doubtless plays a part. That this is sometimes the case is certain, as is shown by an instance cited by Dehler,[1] in which one bacillus bearer kept up a small outbreak.

The important question regarding the bacillus bearers is, what is to be done to detect them and to prevent them from infecting others? So far as detection is concerned, we know of no method now universally practicable. We may reach a stage in the development of preventive medicine when a typhoid patient will be quarantined, like a diphtheria patient, until he is free from bacilli. No physician who has done bacteriologic work among typhoid patients doubts that, under present conditions, hundreds of them are discharged from hospitals yearly bearing typhoid bacilli in their urine and stools. This takes no account of private patients who are less carefully followed bacteriologically. So long as such conditions continue, it seems a hopeless task to try to limit typhoid fever by our present method, viz., the disinfection of the urine and feces. If the bacilli disappeared as soon as convalescence was established, this would be all very well, but, as the work on bacillus bearers has shown, the typhoid germ may be present in the urine or stools for months. Doubtless the fecal infection is in many cases, as Dehler suggests, secondary to a gall-bladder infection. Doubtless, too, in some instances, as in a case quoted by this author, draining of the bile passages will cure the infection and render the individual harmless. Even supposing it were possible to detect all bacillus bearers, it would not be possible to keep them under the influence of hexamethylenamin or to force them to submit to having their bile passages drained.

Shall we ever be able, then, to limit the ravages of typhoid fever? Certainly there is no excuse for outbreaks of the disease due to contaminated water supplies. The water company which permits conditions which allow of wholesale water contamination should be heavily mulcted by means of damage suits. It is doubtful that we shall be able to prevent sporadic cases of typhoid fever by educating the public in cleanliness. That it can almost be done under military discipline the Japanese have shown us, but that it can be done under the circumstances of every-day life is, to say the least, extremely dubious. There we are dealing not with trained men under discipline, but with the ignorant, the shiftless, and those of immature years unable to realize the meaning of preventive measures. It almost looks as though the stamping out of typhoid fever must be accomplished by some other means than by preventing the entrance of the typhoid bacillus into the human economy.

What other means of stamping out the disease do we possess? At present it would seem as though our greatest hope lay in preventive inoculation. Originated by the English army surgeons, its use has recently been extended to the German army, and the statistics of Eichholtz[2] seems to confirm the view that it is a valuable procedure. This author's figures are small, but, like the recent English figures, they show that inoculated soldiers are less liable to the disease, and when attacked show a much smaller mortality, much fewer severe complications, a shorter course and a milder run of fever. The method is still in its childhood, and may be improved. Millions submit to vaccination; typhoid fever is to the layman less terrible than smallpox, and it is not so indiscriminate in its attentions, but it is within the bounds of possibility that in time we shall be inoculating against typhoid fever just as we now vaccinate against smallpox.

1. Münch. med. Wochschr., April 16, 1907.

2. Münch. med. Wochschr., April 16, 1907.

THE FUTURE OF MEDICAL EDUCATION IN THE UNITED STATES.

Medical education in the United States is, at present, in a rather unsatisfactory condition, a condition due mainly to the circumstances under which it has developed. In this country the growth of medical education has followed lines quite different from those along which it has developed in Europe. In Germany and France the medical school has developed as a department of the university, in England under similar circumstances or in connection with a hospital, while in the United States it has usually come into existence as a fruit of the effort of a group of ambitious medical men, and has been devoid, originally, at any rate, of close official connection with either a university or a hospital. These remarks apply to a majority, but not to all, of the medical schools in this country.

Twenty or twenty-five years ago the student at an American medical school received almost purely didactic instruction, supplemented, however, by clinical observation under a preceptor which was often of a most practical kind. The actual instruction in a medical school extended over two short terms, the student hearing the same lectures each year. Later the longer graded course was instituted, and the amphitheater clinic came into vogue, and still later laboratory methods of teaching were developed, with the employment by the better

schools of trained laboratory instructors devoting their whole time to the work. At present most, in fact practically all, of the better schools are, to use Barker's classification, on a semi-university basis. The subjects of the first two years are well, in a few instances admirably, taught by men specially trained for this purpose. The work of the last two years is still in the hands of the men who have by dint of hard work and natural ability risen above the rank and file, and stand in the forefront of the profession. Many of these men are good teachers, some are great teachers, but they are the busiest practitioners of the cities, and their practice, their livelihood, has, of necessity, first call on their time and their energy. The teachers in the clinical branches in some schools receive no remuneration, in others a scanty pittance, in a few a salary on which they can exist with the aid of consultation work. Not once but scores of times have these clinical teachers made the greatest sacrifices in the cause of teaching. Is it to be expected that the teaching work of these men, no matter how able they are, will compare with the work of men who devote their whole time and energy to the subject?

The changes in teaching have been accompanied, as we mentioned recently,[1] by a great increase in the expense of medical education. A well equipped medical college is perhaps the most expensive form of technical school, and if medical teaching is to be put on a proper basis it will become more, rather than less, expensive. How to meet the demands of this increased expense is the question which the American medical college must answer. Not only must adequate laboratory facilities be provided, but a teaching hospital under the control of the school is an essential. Not only must the teachers of the scientific branches be adequately rewarded, but the clinical teachers must also receive salaries large enough to enable them at least to make their teaching their primary work. A few schools have met the problem by securing endowments from private sources, more are attempting to meet it by affiliation with rich universities. Up to the present time, however, none of the universities has placed its medical department on a true university basis. Just as the doctor's bill is generally the last to be paid, so the medical department is usually the last to which a university president pays attention.

After all it is the people who are most vitally interested in the question, for it is they who profit by the more thorough training of the physician. Has the general public done its duty by medical education? In some states the state university has a well equipped medical department, including a university hospital, but there are very few of these. Minnesota has taken the lead, not only in providing for high entrance requirements to its university medical school, but also in demanding that physicians coming to that state shall be educated equally as well as those from its own schools. The United States is no longer so thinly populated that there is difficulty in getting a sufficient number of physicians for the scattered population of the country districts; it is no longer so poor that it can not afford well educated physicians. The action already taken by some states indicates the lines along which help must come. The present system, however, presents certain problems. Is each state to aid only its own university medical school? If so, what is to become of the proprietary medical schools? These schools represent hundreds of thousands of dollars of capital, and, more than his, they have been built up by years of often unselfish work. Under present conditions they can not turn out well educated physicians, when the cost of educating a student—if educated as the times and conditions demand—is from two to three times the amount received from him in fees. We are forced to the conclusion, therefore, that the successful medical school of the future must receive aid. Whether such endowment shall come from the state or from private sources local conditions will determine, but that such support must come is self-evident.

1. THE JOURNAL, March 9, 1907, 880.

TYPICAL NOSTRUMS.

During the last two years there have appeared in the Department on Pharmacology exposés of some of the most typical nostrums which have exploited the medical profession. No doubt some of our readers have considered it beneath the dignity of THE JOURNAL to discuss such preparations and have felt that the space would be better used if filled with scientific articles on subjects of interest to the better class of physicians. On this point there may be room for argument. These exposés are primarily educational in character; they are object lessons to show physicians how they are being imposed on. The preparations exposed have been selected from a mass of similar stuff, not because they are the worst, or the only ones, but because each is the type of a certain feature or aspect of the nostrum business. The large number of these products now offered through physicians to the public—we believe this is a good way of expressing it—as well as the amount of money spent in advertising, show to what extent this business has developed. We wish that every physician could read these articles, and that he would read between the lines as well as on them, so that he might realize the absurdity and disgracefulness of the whole business. In the preceding issue and in this one we have given considerable space—running the exposé as a continued story, as it were—to two proprietary medicines that are such typical nostrums—outdoing the average "patent medicine" in many respects—that we are almost persuaded to apologize for noticing them, since one would suppose no intelligent physician would be foolish enough to prescribe them. And yet, according to reports, both the Anasarcin and Anademin companies are prospering, showing that their stuff is largely used. Further, these nostrums are representative of a very large class and have many of the

characteristics of the ordinary "ethical" proprietary article. While pretending to give a formula, in both instances the formulas are fakes in that they are incomplete and misleading. Both are typical of the fact that most of the proprietary medicines are simple mixtures, of some value possibly in certain indicated conditions if they are used with caution, while the promoters are lavish in their statements that the combinations are the result of great scientific research, etc. They illustrate further the fact that the majority of such articles are put out by men who know nothing of medicine, pharmacy or chemistry, and yet assume to supply not only the medicines, but all information regarding their use. In this instance there seem to be some doctors mixed up in the business, but so far as we have been able to learn they are not noted for their educational acquirements or superlative knowledge regarding either medicine, pharmacy, chemistry or any other branch of science. We repeat, we publish this and similar matter for the enlightenment of the profession in regard to some phases of this nostrum evil. We make no apology for doing so, but urge every physician to read this matter and, whether or not he is in the habit of prescribing nostrums, to aid the propaganda to suppress them.

PLACES MAINTAINED BY ABORTIONISTS ARE NUISANCES.

One of the hardest problems to solve in the attempt to put professional abortionists out of business is the difficulty of obtaining direct evidence of a specific offense. Such evidence, of course, is essential if conviction is sought on the ground that the crime of abortion has been committed. If conviction can be secured on a more general charge, however, the problem seems in a fair way of being solved. In our Medicolegal Department this week[1] a decision of the Supreme Court of New York is reported which has a special significance in this regard, it being the first of its kind in American legal records. The defendant, an advertising abortionist, was charged with maintaining a public nuisance, which under the New York Penal Code is defined as: (1) Unlawfully doing an act or omitting to perform a duty, which act or omission annoys, injures or endangers the comfort of persons; or (2) offends public decency. The case was carried to the higher court after conviction of the defendant on the ground that the penal code made abortion a crime of a higher character and that there was no jurisdiction in the trial court of the offense charged as a public nuisance. No previous decision could be found declaring the maintenance of a place kept for such purposes a public nuisance. The court took the broad view that it was not necessary, as was technically claimed, that the actual commitment of the crime should be proved to bring the case under the statute. The offense of inviting the performance of abortion and maintaining premises for its commission is in itself a crime against order and public decency. A comprehensive definition such as was adopted by the court should cover a much larger class of offenses, it would seem, than those directly aimed at in the decision and it ought to be easy hereafter to put down illegal and immoral advertising offenders in New York. A valuable precedent is made also for legal proceedings against like offenses in other states where the technical interpretation of the letter and disregard of the spirit of the law have too often successfully aided open violators of good morals.

1. Page 1633.

COMMITMENT OF SUSPECTED INSANE.

Following hard on the Thaw trial, and probably as one of its results, a bill has been introduced in the New York Legislature amending the criminal code of the state in relation to inquiry before trial as to the sanity of a prisoner charged with felony. It makes provision for the commitment to a state hospital for the insane of such a person, at the request of either his attorneys or the prosecuting attorneys, for a period of not less than three nor more than six weeks, within which period it is assumed a correct knowledge of his mental condition can be acquired. The idea is a good one, but the wisdom of the exact time limitations may perhaps be questioned. In a doubtful case, such as are most of those in which the plea of insanity has been raised as a defense, it is not always possible to say that six weeks would be sufficient time to form a positive opinion as to the sanity or insanity of the accused. Most experienced alienists, we think, can tell of cases in which they were not satisfied as to the mental condition of a patient after considerably longer observation than the six weeks here provided for. It is possible for a paranoiac to conceal delusions over long periods, and while it would be difficult for the ordinary criminal to simulate insanity successfully, it would be rash to say that there might not be some so well posted in the symptoms and capable of self-control as to enable them to leave a doubt as to their mental soundness in the mind of even a skilled observer. Simulation of insanity is not at all confined to the sane, and while it may be very evident, there may be underneath it a real mental aberration that may be aggravated by the attempt to exaggerate. Some authorities have maintained that the attempt to sham mental disease has a direct tendency to produce it. It is very improbable that the patients occasionally discharged from asylums as "not insane" have been detained, as a rule, for so short a period as six weeks, and yet no superintendent would be justified in keeping them a day after he is convinced of their mental integrity. The plan, however, is a good one, and if generally adopted and properly carried out, would be in the interest of justice, would prevent the escape of some criminals from their just deserts, and, probably, prevent an occasional judicial murder. It is practically followed out in some parts of the country without special legal provision for it, by a little stretching, it may be, of existing laws. A properly drawn-up measure analogous to that proposed in New York specifically legalizing the commitment for observation and making due provisions for properly guarding the individuals thus committed (which can not always be done in an ordinary state hospital) would be still better.

Medical News

ALABAMA.

Society Meetings.—At the annual meeting of the Marengo County Medical Society, held in Linden, April 13, the following officers were elected: President, Dr. Andrew P. McArthur, Rembert; vice-president, Dr. John C. Christopher, Nanafalia; censor, Dr. James D. Jones, Sweetwater; treasurer, Dr. James B. Whitfield, Demopolis; secretary, Dr. Offa L. Shivers, Jr., Linden; and health officer, Dr. William L. Kimbrough, Linden. ——At an enthusiastic meeting of the alumni of the Medical Department of the University of Alabama, held at Mobile Medical College, April 16, the alumni association reorganized and elected the following officers: President, Dr. Louis W. Johnston, Tuskegee; vice-presidents, Drs. Lewis W. Desprez, Florence, and Charles Whelan, Birmingham; and secretary-treasurer, Dr. Percy J. Howard, Mobile.——At the twelfth annual session of the Alabama Medical, Dental and Pharmaceutical Association (colored), held at Birmingham, April 11 and 12, Montgomery was chosen as the next place of meeting, and the following officers were elected: President, Dr. George H. Wilkerson, Mobile; vice-president, Dr. Cato H. Wilson, Eufaula; William Hawkins, Montgomery; D. L. Johnson, Birmingham, and U. C. Robinson, Ensley; secretary, Dr. Lincoln L. Burwell, Selma; assistant secretary, Dr. W. H. Brummit, Taladega; treasurer, I. B. Kigh, Birmingham, and delegate to the National Medical Association, Dr. Willis W. Steers, Decatur.

CALIFORNIA.

Trachoma at Fresno.—Thirty cases of trachoma are reported among Russian and Japanese immigrants at Fresno.

Public Health Association Meets.—The second annual meeting of the California Public Health Association was held at Del Monte, April 15. The association recommended that a law be passed appointing a medical officer to every school, to investigate the health conditions prevailing, and also make a thorough investigation of the eyes and ears of all scholars, and to advise with the parents concerning the advisability of compelling weak children to attend school. Dr. Antrim E. Osborne, Santa Clara, was elected president, and Dr. Charles F. Clark, Woodland, vice-president. The next meeting of the association will be held at Woodland in October.

State Society Election.—At the annual meeting of the Medical Society of the State of California held at Del Monte, Monterey, April 16 to 18, the following officers were elected: President, Dr. George H. Evans, San Francisco; vice-presidents, Drs. James A. McKee, Sacramento, and John C. King, Banning; secretary, Dr. Philip Mills Jones, San Francisco; delegates to the American Medical Association, Drs. H. Bert Ellis, Los Angeles; Philip Mills Jones, San Francisco, and Oliver D. Hamlin, Oakland; alternates, Drs. Henry M. Pond, Alameda; Charles C. Browning, Monrovia, and William F. Snow, Stanford University, and councilors, Dr. George H. Kress, Los Angeles, succeeding Dr. H. Bert Ellis; Dr. Fred R. Burnham, San Diego, succeeding Dr. Ashley S. Parker, Riverside, and Dr. Henry A. L. Rykfogel, San Francisco, succeeding Dr. George H. Evans. The House of Delegates approved the efforts made toward securing the new law, and, in fact, approved all acts of councilors and officers during the year. The House of Delegates also instructed the publication committee to advertise no preparations not approved by the Council on Pharmacy and Chemistry, but to continue until their expiration all existing contracts. Coronado was selected as the meeting place for 1908.

Personal.—Dr. Fred E. Zumwalt has been appointed assistant surgeon of the Emergency Hospital, San Francisco, to succeed Dr. Charles B. Pinkham.——Dr. Edward C. Sewall has been appointed eye specialist at the San Francisco County Hospital.——Dr. James W. Ward, San Francisco, has resigned from the health commission. Dr. Jules A. Simon has been elected president of the board and Dr. Henry D'Arcy Power a member.——Dr. W. R. Ingersoll, Fresno, has been appointed physician at the state prison, Folsom, vice Dr. Charles F. Gladding, Represa, resigned.——Drs. Sumner J. Quint and Edward H. Garrett have been appointed surgeons at the City Hospital, Los Angeles.——Dr. Ethel L. Leonard, city bacteriologist of Los Angeles, has resigned.——Dr. Warren N. Horton, formerly of St. Louis, has been appointed city bacteriologist of Los Angeles.——Dr. Stewart McL. Doherty has been appointed third assistant physician at the State Hospital, Napa, to succeed Dr. Isadore E. Cohn.——Dr. Thomas M. Hayden has been re-elected city health officer of Fresno, and secretary of the local board of health.——Dr. E. W. Alexander, San Francisco, commander of Camp 30, was presented with a silver loving cup by the residents of the camp, April 15, on the eve of his departure for Europe.

ILLINOIS.

Banquet at New Hospital.—The banquet for the medical staff of the Oak Park Hospital, which was postponed from March 3, on account of the illness of Dr. John W. Tope, chief of staff, was held May 4. Bishop E. J. Dunne, Dallas, Texas, gave the opening address. Dr. William A. Evans, health commissioner of Chicago, was toastmaster. Addresses were made by several physicians of Chicago.

Free Distribution of Antitoxin.—Under the omnibus appropriation bill the State Board of Health will be allowed $15,000 yearly for free distribution of antidiphtheritic serum outside of Chicago. The appropriations of the State Board of Health have been materially increased also, by this bill, the sum of $119,200 having been appropriated for the work of the board, against the sum of $83,320 granted by the General Assembly of 1905.

New Medical Practice Act.—A bill introduced at the instance of the State Board of Health, and now on final passage in the senate, will confer specific authority on the State Board of Health to establish standards of preliminary education and to determine the standing of literary, scientific and medical schools; will provide for reciprocal registration of licenses; will allow the members of the board compensation for their services, and will remedy a defect in the act of 1899 by giving the State Board of Health jurisdiction over all licenses issued since July 1, 1877.

New Sanitary Act.—A bill conferring additional powers on the State Board of Health has passed both houses. It gives the board supreme authority in all matters of quarantine and makes it the duty of all local boards of health to enforce the rules and regulations adopted by the state board. A severe penalty is provided for violation of the regulations of the State Board of Health, which is empowered to enforce health measures in cities and villages when the municipal authorities neglect or refuse to act with sufficient promptness or efficiency, and to collect from the city or village all necessary expenses incurred.

Osteopath Bill Killed.—House bill No. 318, to place an osteopath on the State Board of Health, failed of passage in the house, May 2. Another bill was designed to establish a standard for medical and osteopathic schools, to license osteopaths without examination, and to confer on them "all the rights and privileges which physicians in the state now have." The State Board of Health was characterized as "an arrogant and arbitrary body having absolute power over the standards of medical schools." The bill met with the fate of the several osteopathic bills introduced in the Illinois General Assembly since 1897.

Reciprocity and the State Board of Health.—At a meeting of the Illinois State Board of Health and the officers of the Illinois State Medical Society, the Illinois Homeopathic Medical Association, the Illinois State Eclectic Society and the Illinois Physio-Medical Society, held in Chicago, April 24, the committee on reciprocity appointed at the meeting held April 5, made the following report:

1. After investigation the committee wish to express its hearty approval of the work of the Illinois board in promoting better reciprocal relations between states.
2. We believe the plan of the Illinois board in giving credit to the old practitioner for years of practice is an eminently just and fair one, minimizing, as it does, the inconvenience to older practitioners.
3. We believe that under the present law the board can take no other position regarding the licensing of practitioners from other states.
4. We believe that still better reciprocal relations between Illinois and other states would be possible if the present law could be amended so as to allow the board, at its discretion, to grant licenses without examination, to practitioners from other states who were in practice before the adoption of the present medical practice act in Illinois.

The conference approved the first three sections of the report. After a lengthy discussion, which was participated in by every physician present, the conference, by unanimous vote, rejected the proposed amendment to the law. The committee stated that the recommendation for the plan of reciprocity, suggested in Section 4, was made for the express purpose of learning the views of the representatives present at the meeting, as the State Board of Health had been criticised for not reciprocating in the case of licenses issued on diplomas and without examination.

Chicago.

Personal.—Dr. Emanuel J. Senn returned from Europe, May 5.——Dr. L. Blake Baldwin was appointed city physician, May 6.

Ex-Internes Banquet.—The Society of Ex-Internes of St. Luke's Hospital held its annual meeting and banquet April 27. Dr. James T. Campbell was elected president, and Dr. George E. Baxter, secretary.

Killian to Give Clinic.—Professor Killian of Freiburg, Germany, will give a clinic at Rush Medical College on diseases of the nose and throat, May 15, at 2 p. m., to which the profession of the city is invited.

Mortality to May 1.—During the first four months of 1907 12,075 deaths were reported, an increase of 2,059, or of 17.3 per cent. over the same period of 1906. The increase in mortality was chiefly in diseases of the respiratory tract, chronic affections and acute communicable diseases.

Mortality for the Week.—During the week ended May 4 there were 764 deaths reported, equivalent to an annual rate per 1,000 of 18.90. Pneumonia caused 170 deaths, or 52 more than the preceding week; consumption, 81; nephritis, 59; heart diseases, 58; violence (including suicide), 44; scarlet fever, 16; diphtheria, 11; measles, 9; whooping-cough, 8, and influenza, 4.

April Deaths.—During April there were reported 2,971 deaths, 271 more than for the corresponding period of 1906 and nearly 1,000 less than for March, 1907. As compared with March there were 112 fewer deaths from pneumonia; 47 fewer from consumption; 29 fewer from scarlet fever. Acute intestinal diseases caused 46 more deaths; nervous diseases, 39; nephritis, 22; diphtheria, 22, and measles, 18.

National Guard Changes.—Major Charles Adams has resigned as surgeon of the First Infantry and has been made secretary to the surgeon general.——Captain Samuel C. Stanton has passed his promotional examination, and Dr. Daniel W. Rogers his examination for the medical department, and they will be assigned as major and surgeon and first lieutenant and assistant surgeon, respectively, to the First Infantry.——Dr. Harry D. Orr has passed his examination and will be commissioned first lieutenant and assistant surgeon, and assigned to the First Cavalry.

INDIANA.

Schools Not Closed.—Dr. Edmund S. Imel, secretary of the Petersburg board of health, states that the schools have not been closed and that there has been no scarlet fever in the town within twelve months.

Communicable Diseases.—More than a thousand cases of measles of a mild type are reported in Muncie and Delaware County.——Dr. Edgar C. Loehr, health officer of Hamilton County, reports eight cases of smallpox at Atlanta.

Personal.—Dr. Arthur B. Cray has been appointed health officer of Monticello, vice Dr. Grant Goodwin, resigned.——Dr. Thomas P. Seller, one of the oldest practitioners of Indianapolis, is critically ill.——Dr. Marquis Greenwalt, Fort Wayne, who is seriously ill, has been removed from his residence to Hope Hospital.

Graduation.—The graduation exercises of Indiana Medical College, College of Medicine of Purdue University, Indianapolis, were held May 1 at Lafayette. A class of 70 was presented to the dean, Dr. Henry Jameson. The degrees were conferred by President W. E. Stone of the university, and the address of the day was by President George L. McIntosh of Wabash College on "Artists and Hucksters." The faculty of the college entertained the graduating class at a banquet in Indianapolis, April 27, at which Dr. John H. Oliver acted as toastmaster.

IOWA.

State Society Meeting.—The fifty-sixth annual meeting of the Iowa State Medical Society will be held at Cedar Rapids, May 15 to 17. The headquarters are the Montrose Hotel, and the sessions will be held in the Auditorium.

Cerebrospinal Meningitis.—Meningitis is reported prevalent in the northwestern part of Appanoose County.——There are reported to be more than 20 cases in the village of Mystic and the surrounding mining camps.——Three cases are reported at Ankeny, with one death.

Personal.—Dr. John N. Warren, Sioux City, sailed on the *Deutschland* from New York April 30.——Dr. Herbert M. Decker has been appointed to take charge of the bacteriologic laboratory establishment in Davenport by the State Board of Health.——Dr. Emil O. Ficke, Davenport, has been appointed physician of Scott County, vice Dr. Charles L. Barewald.——Dr. A. Sidney Bowen, Waukon, has been appointed to a position in the medical service of the Canal Zone.——Dr. W. Pitt Norris, Birmingham, was stricken with a cerebral hemorrhage, April 20.——Dr. and Mrs. R. O. Shelton, Bloomfield, left for their future home in San Diego, Cal., April 27.

Alumni Meeting.—The third annual meeting of the medical alumni association of the College of Medicine of the State University of Iowa, Iowa City, was held April 30 and May 1. On the first day an address of welcome was delivered by Dr. James R. Guthrie, Dubuque, dean of the College of Medicine. In the afternoon clinics were held, and in the evening Dr. Mazyck P. Ravenel, Philadelphia, delivered an address, illustrated by lantern slides, demonstrating on "A Modern View of Tuberculosis and the Rôle of Sanatoria." A painting of Dr. Clinton J. Schrader was presented to the university by Dr. James R. Guthrie and was received for the university by President George E. McLean. On the second day Dr. Joseph C. Bloodgood, Baltimore, held a surgical clinic, Dr. Ravenel delivered an address on the histology of tuberculosis, and other demonstrations were held. In the evening the annual banquet was given at the Burkley Imperial.

KENTUCKY.

Personal.—Dr. Martin J. Bartlett, Louisville, is at present in Riverside, Cal.——Dr. Flavius J. Taylor, Glasgow, is reported to be critically ill at his home.

Hospital to be Established.—At the last meeting of the Mercer County Medical Society a movement was inaugurated to establish a hospital at Harrodsburg. A committee was appointed to consider plans and details.

LOUISIANA.

Gift to Infirmary.—Mr. Isidore Newman presented $5,000 to the Touro Infirmary on his seventieth birthday.

Insane Hospital to be Rebuilt.—The estimate of the local contractor as to the damage by the cyclone at the State Insane Hospital, Jackson, is $47,000, and immediate action is to be taken toward restoration of the building.

Medical Society Meeting.—The East Baton Rouge Parish Medical Society, at its annual meeting, held in Baton Rouge, May 14, elected Dr. Charles D. Simmons, president; Dr. John A. Caruthers, vice-president, and Dr. Joseph E. Heidingsfelder, secretary-treasurer.

Tuberculosis Sanatorium.—A sanatorium for the treatment of tuberculosis is soon to be established in St. Tammany Parish. Mr. N. O. Nelson of St. Louis has donated $1,000 for the initial expenses. The institution is to be operated under the auspices of the New Orleans Anti-Tuberculosis League.

Personal.—Dr. Clarence E. Hutchinson has been appointed superintendent of Touro Hospital, New Orleans, vice John E. Ellis, and Dr. Ansell M. Kane has been appointed junior interne to fill vacancy.——Drs. Dominique J. Gragnon and Arthur Gilbeau have been appointed members of the board of health of Breaux Bridge.

MAINE.

Change of Date.—The annual meeting of the Maine Medical Association will be held in Lewiston, June 12-14, instead of June 5-7.

Hospital for Bath.—The business men of Bath plan a city hospital, for which the late Miss Lucinda Bailey left $5,000. A like sum may be needed for equipment.

Son, Not Father, Moved.—The notice in THE JOURNAL, April 27, that Dr. Walter L. Hunt had removed from Bangor to Island Falls was incorrect. Dr. H. J. Hunt, a son of Dr. W. L. Hunt, has removed to Island Falls, succeeding to the practice of Dr. Frederick W. Mitchell.

Home for Feeble-Minded.—At the annual meeting of the Rockland Board of Trade resolutions were adopted pledging the board to attempt to secure a location of the Home for the Feeble-Minded at Rockland. It is proposed to secure about 500 acres of land in the western section of the city for this purpose.

MARYLAND.

New Secretary for State Board.—Dr. Marshall L. Price has been elected secretary of the State Board of Health, vice Dr. John S. Fulton, resigned.

Health Report.—Of the 186 deaths in Baltimore during the week ended May 4, 30 were from pneumonia. During the week 113 cases of measles were reported to the health department.

Honor for Carroll.—The University of Maryland will confer the honorary degree of LL.D. on one of its alumni, Major James S. Carroll, United States Army, at the centennial celebration to be held in Baltimore May 30 to June 2.

Society Meeting.—At the annual meeting of the Cecil County Medical Society at Elkton, Dr. Robert M. Black, Cecilton, was elected president; Dr. George S. Dare, Rising

Sun, vice-president; Dr. Howard Bratton, Elkton, secretary and treasurer, and Dr. Theodore A. Worrall, Northeast, censor.

MASSACHUSETTS.

To Lay Dust.—In response to a request from the Brookline Medical Club to allay the nuisance of dust on the streets, the selectmen of that town—"the richest in America"—have experimented with the chlorid of calcium process and have decided to apply it to the 65 miles of macadam roads in the town.

Disease and Death.—There were reported to the Boston board of health for the ten weeks ended May 4, 2,362 deaths, as against 2,384 in the corresponding period in 1906, equivalent to an annual death rate of 20.45 per 1,000. During this time there were 500 cases of diphtheria, with 32 deaths; 480 of scarlet fever, with 9 deaths; 53 of typhoid fever, with 4 deaths; 126 of measles; 524 of tuberculosis, with 257 deaths, and 2 of smallpox. Pneumonia caused 335 deaths; whooping-cough, 7; heart disease, 258; bronchitis, 62; marasmus, 26. Of those who died 383 were under one year old, 523 were under 5 years old, and 591 were over 60 years of age.

MICHIGAN.

Typhoid Fever.—Escanaba is said to be suffering from a heavy epidemic of typhoid fever. There were reported to be at least 150 cases in the city.

Medical Journals Combine.—The *Detroit Medical Journal* has absorbed *Leonard's Illustrated Medical Journal*, Detroit, taking over both the advertising contracts and the circulation list, beginning with the April issue.

Raises Entrance Standard.—The board of regents of the University of Michigan, at its meeting April 19, decreed that: "Beginning with the class to enter in the fall of 1909, every candidate for the degree of M.D., in the College of Medicine and Surgery of the University of Michigan shall show a certificate that he has had two years' work in the literary department of some first-class college."

Personal.—Dr. Berten M. Davey has been elected city physician of Lansing.——Dr. Walter H. Sawyer, Hillsdale, is seriously ill with septicemia.——Dr. Ethan A. De Camp, Bannister, has been appointed health officer for Elba Township, vice Dr. Charles F. Patton.——Dr. Anson A. Smith, Muskegon, has recovered from his recent illness.——Dr. Edward P. Waid, Salem, has been appointed township health officer.——Dr. Frances A. Rutherford, Grand Rapids, returned May 1, after a few months spent in Southern California.

MISSOURI.

Personal.—Dr. Jesse L. Eaton, Bismarck, has been appointed a member of the board of management of the State Sanatorium for Tuberculosis, Mount Vernon.——Dr. Robert M. Cowan, Springfield, has been appointed health commissioner. ——Drs. Julius Frischer, Paul Lux, Thomas C. Unthank, William A. Shelton, William L. Gist and Ford B. Rogers have been appointed city physicians, and Dr. Eugene Carbaugh has been appointed quarantine physician of Kansas City.

Cancer Hospital Report.—Since the establishment of the St. Louis Skin and Cancer Hospital in July, 1905, 522 cases have come under the supervision of the institution, 439 of which were hospital cases. In the hospital 151 tissue and 288 organic examinations were made. During the first 18 months $15,323.92 was expended of the $15,605.94 on hand, leaving a cash balance of $283.02. The total amount of subscriptions promised is $46,495.10 and the cash on hand at the end of the fiscal year $8,196.02. The report shows that $12,500 additional is needed to carry out the work for the remaining term of three and one-half years.

NEBRASKA.

Society Meeting.—At the annual meeting of the Republican Valley Medical Society, held in Holdrege, Dr. Elbert E. Cone, Oxford, was elected president; Dr. William A. Schreck, Bertrand, vice-president; Dr. Joseph N. Campbell, Stamford, secretary, and Dr. Peter A. Sundbury, Holdrege, treasurer.—— Cass County Medical Society at its annual meeting, held in Louisville, elected Dr. James B. Hungate, Weeping Water, president; Dr. Theodore P. Livingston, Plattsmouth, vice-president; Dr. J. E. Wortham, secretary-treasurer, and Dr. Hungate, delegate to the state society.——At the annual meeting of the Hall County Medical Society, held in Grand Island, Dr. Weiss was elected president; Dr. J. Lue Sutherland, Grand Island, vice-president, and Dr. Benjamin R. McGrath, Grand Island, secretary-treasurer. The society passed resolutions prohibiting the use of members' names in local newspapers in connection with medical or surgical cases.——The Box Butte County Medical Society held its annual meeting at Alliance and elected the following officers: President, Dr. Harvey H. Bellwood; vice-president, Dr. G. W. Mitchell; secretary-treasurer, Dr. John E. Moore, and censors, Drs. Luther W. Bowman, G. W. Mitchell and E. E. Barr, all of Alliance.

NEW YORK.

Smallpox Closes Schools.—The schools of Dundee have been closed indefinitely on account of smallpox.

Signed by the Governor.—Senator Page's bill, amending the charter of the Medical Society of the State of New York relative to defense of actions, has been signed by the governor.

Commencement.—At the commencement exercises of Albany Medical College, May 3, a class of 40 was graduated. The diplomas were conferred by Chancellor Raymond and the address to the graduates was delivered by Joseph A. Lawson of Albany.

Personal.—Dr. Albert Vander Veer of Albany was the guest of honor at a dinner at the Hotel Ten Eyck, given by more than 100 of the students, who have from time to time been his students. A silver loving cup was presented to Dr. Vander Veer.——Dr. John M. Farrington, Binghamton, read a paper before the Broome County Medical Society, April 3, entitled "Fifty Years in the Practice of Medicine," in which he gave reminiscences of his half-century of practice in which he named in chronological order the members of the profession in the city who had died in the last 21 years.——Dr. William W. Carleton has been reappointed health officer of Waterloo. ——Dr. Charles W. Pilgrim has resigned as superintendent of the Hudson River State Hospital, Poughkeepsie.——Dr. Warren L. Ayer, Owego, is ill with pneumonia.——Dr. Robert Knight, Seneca Falls, has been appointed city physician.——Dr. Frank W. Sears, Binghamton, has been commissioned assistant surgeon, N. Y. N. G., with the rank of captain, and assigned to duty with the First Infantry.

New York City.

Trachoma in Public Schools.—The oculists of the health department have just completed a special investigation of trachoma among the children in the schools, and the report shows that there are 8,700 cases instead of 10,000 as had been estimated. It was also stated that operative treatment gave better results than non-operative, as 70 per cent. of the cases treated by surgery were cured.

Personal.—Dr. Joseph D. Bryant had the degree of doctor of laws conferred on him at the quarterly meeting of the faculty of Cornell University Medical College, April 27. Dr. Bryant has been connected with the college as professor of anatomy and professor of surgery for 39 years.——Dr. Charles H. Archibald, while in his automobile, collided with a car and was thrown out and cut and bruised about the head.

Contagious Diseases.—For the week ended April 27 there were reported 543 cases of scarlet fever, with 26 deaths; 477 cases of measles, with 17 deaths; 407 cases of tuberculosis, with 227 deaths; 339 cases of diphtheria, with 39 deaths; 100 cases of typhoid fever, with 18 deaths; 60 cases of whooping-cough, with 11 deaths; 20 cases of cerebrospinal meningitis, with 17 deaths; 1 case of smallpox, and 96 cases of varicella, making in all 2,034 cases, with 356 deaths.

Moving Day for Hospitals.—On April 29 the Harlem Hospital moved into its new structure on Lenox Avenue, between One Hundred and Thirty-sixth and One Hundred and Thirty-seventh streets. There is room in the new building for 200 patients. Following this move there will be a change in the district covered by the Harlem ambulances, of which there are five. On the same day the Fordham Hospital moved into new quarters. The new hospital accommodates 150 patients and is located at Southern Boulevard and Crotona Avenue.

A Paying Philanthropy.—As a result of the movement to improve the dwellings of the poor which was started a few years ago, four large groups of houses have been erected accommodating about 2,000 families. The secretary of the association reports that in 1906 there were in these tenements 104 births and 17 deaths. In one group of houses where there were 400 children there were only three deaths during the year. In another group there were no deaths. In addition to the improved condition of the people, these modern tenements have yielded a return of 4 per cent. on the money invested, although the enterprise was not intended as a money-making venture.

Appropriation for Milk Booths.—By a unanimous vote the board of aldermen requested the board of estimate to authorize the issue of $8,000 of special revenue bonds for the erection

of stands in the parks for the sale of milk. A personal appeal was sent to each alderman by the Woman's Municipal League asking for the passage of the resolution. The New York City Federation of Woman's Clubs also adopted a resolution calling on the city to provide temporary structures for the distribution of pure milk for the children of the tenements. Nathan Strauss has offered to provide an abundant supply of pasteurized, modified milk, in nursing bottles, and by the glass, in addition to providing competent medical supervision of the work, if these structures are built.

NORTH CAROLINA.

Commencement.—The commencement of the Medical Department of the University of North Carolina, Chapel Hill, was held May 8, when diplomas were awarded to a class of 11.

New Building for North Carolina College.—The University of North Carolina will erect a larger building for the medical department. A committee of the trustees was appointed to arrange for its erection.

State Sanatorium.—Dr. James E. Brooks, Greensboro, has been elected superintendent of the State Sanatorium for Tuberculosis, Jackson Springs. The executive committee has been authorized to erect suitable buildings and to open the sanatorium, as provided for by the state legislature. It is reported that a location has been selected in Moore County.

District Association Meeting.—At a regular meeting of the Tenth Councilor District Medical Society, held at Asheville, April 15, the following officers were elected: President, Dr. Lewis B. McBrayer, Asheville; vice-presidents, Drs. William Redin Kirk, Hendersonville; Sheridan C. Highway, Murphy, and Charles E. Reed, Asheville; and secretary, Dr. Gaillard S. Tennent, Asheville.

OHIO.

Hospital Changes Ownership.—The Seton Hospital, Cincinnati, conducted by the Sisters of Charity, has secured possession of the Presbyterian Hospital property for $50,000. The present hospital will probably be used as a home for the sisters.

Typhoid Fever in Cincinnati.—Nearly 2,200 cases of typhoid fever have been reported in Cincinnati since June 1, 1906. This includes the 24 wards of the city and public institutions, but not the outlying villages. This would seem to be a good argument for the completion of the new waterworks.

Personal.—Dr. O. H. Pinney, Cincinnati, has been appointed by the Presbyterian Board of Foreign Missions a medical missionary to Benito, West Coast of Africa, and leaves for his post of duty in July.——Dr. Lester Keller, Ironton, has been appointed local surgeon for the Detroit, Toledo and Ironton Railway.——Dr. Paul Gillespie has been elected health officer of Wyoming, Cincinnati.——Dr. Anthony G. Kreidler has been made editor, and Dr. George Strobach, managing editor, of the Cincinnati *Lancet-Clinic*.

PENNSYLVANIA.

Typhoid Epidemic.—There is an epidemic of typhoid fever in the vicinity of Bechtelsville, near Reading. Thus far there have been three deaths.

Vivisection Bill Dropped.—Representative Townsend's bill to prohibit vivisection has been dropped from the calendar in the legislature. This action followed an address in opposition to the measure made to fifty members of the house by Dr. S. Weir Mitchell of Philadelphia.

Hospital Overcrowded.—The State Miners' Hospital, Hazelton, is so overcrowded that it has been necessary to install additional beds for the accommodation of patients, of whom 53 are being treated. During the past few months more than the usual number of accidents have occurred in and about the mines, and the daily average of patients has been from 48 to 50.

Philadelphia.

The Meningitis Situation.—Six new cases of cerebrospinal meningitis were reported in the city during the past few days, but the authorities assert that there is no occasion to fear an epidemic.

Will Erect Food Laboratory.—The Philadelphia College of Pharmacy will erect and equip a laboratory for the analysis of foods and drugs by October next, to meet the growing demands for analyses created by the national Food and Drugs Act.

Tuberculous Dispensary Opened.—A free dispensary for the treatment of patients suffering with tuberculosis was opened at the Jewish Hospital May 6. This is the first hospital in the city to establish a separate dispensary of this character. Dr. Wilfred Fetterman of the Henry Phipps Institute has been placed in charge of the work.

Resident Physicians Organize.—Dr. Anthony Harrigan, ex-resident physician to St. Joseph's Hospital, was tendered a reception at the Hotel Majestic by the staff of the hospital, and the Association of Residents and ex-Residents of that institution. Dr. Edward E. Montgomery was chairman of the meeting. At this time a permanent organization of the residents and ex-residents of the hospital was effected.

Personal.—Director Neff has made the following appointment to fill honorary position at the Philadelphia Hospital: Neurologist and consultant, insane department, Dr. Theo. H. Weisenburg, to succeed Dr. William C. Pickett, deceased. Dr. Weisenburg was recently appointed professor of neuro-pathology and assistant professor of neurology at the Medico-Chirurgical College, vice Dr. Pickett.——Dr. W. M. Late Coplin, professor of pathology in Jefferson Medical College, has been appointed medical director of the Jefferson Medical College Hospital, vice Dr. Joseph Neff. Dr. Neff still retains his position as president of the medical staff, and is the newly appointed director of the city's department of health and charities.

Semi-Centennial of Pathological Society.—The semi-centennial of the founding of the Pathological Society of Philadelphia was celebrated May 9 and 10 by a series of entertainments and scientific discussions, and an exhibition of pathologic specimens. These covered a wide field of pathology and were of very great interest. The exhibition was held in the Mütter Museum of the College of Physicians May 9. On May 10 the program consisted of the presentation of the following papers: "The Role of Protozoa in Pathology," by Dr. Frederick G. Novy of the University of Michigan; "The Dynamic Point of View in Pathology," by Prof. Alonzo E. Taylor, University of California; "The Newer Pathology," by Dr. Simon Flexner, Rockefeller Institute, and "Pathology and Practice," by Dr. William Osler, Oxford University, England. A luncheon was given to the members at the University Club, May 10, and on the same evening a banquet was tendered the visiting guests at the Bellevue-Stratford Hotel.

WASHINGTON.

Personal.—Dr. Phillip Frank, North Yakima, has been appointed county physician of Yakima County, vice Dr. Thomas Tetreau, term expired.——Dr. Montgomery Russell, Seattle, is taking a trip to the Atlantic seaboard.

Loses License.—In the case of the State Board of Medical Examiners against James G. Stewart, Seattle, the Supreme Court is reported to have decided in favor of the plaintiff, confirming the original sentence of revocation of license.

The Fight Against Tuberculosis.—The Yakima County Medical Society has undertaken to give a number of lectures in the public schools on the proper treatment of tuberculosis. The lectures will be supplemented with pamphlets on the prevention and treatment of tuberculosis prepared by the Washington Association for the Prevention and Relief of Tuberculosis.—— At a recent meeting of the Snohomish County Medical Association it was decided to organize an auxiliary to the Washington Association for the Prevention of Tuberculosis and a committee was appointed to make the necessary arrangements.

Meningitis.—A death from cerebrospinal meningitis was reported April 14 at Gray's Harbor.——During March there were 31 deaths in Seattle from cerebrospinal meningitis, and during the first thirteen days of April 8 deaths occurred.——The Snohomish County Medical Association, at a meeting April 2, decided to advise the health officer to placard for cerebrospinal meninigitis.——Dr. Wilbur N. Hunt, health officer of Bellingham, reports 10 cases of cerebrospinal meningitis, with 5 deaths.——Dr. Rose A. Bebb, city bacteriologist of Tacoma, reports up to April 4, 42 cases of spinal meningitis. The majority of patients were between 10 and 20 years of age and the epidemic is apparently subsiding.

GENERAL.

Personal.—Dr. William Osler, regius professor of medicine at the University of Oxford, England, arrived in New York April 27.

No Liquor for Lepers.—The legislative committee which recently visited the leper settlement at Molokai has reported adversely on the petition that the sale of liquor be permitted in the settlement.

Board of Food and Drug Inspectors Appointed.—The Secretary of Agriculture has created a board of food and drug

inspectors, consisting of Dr. Harvey W. Wiley, chief of the Bureau of Chemistry; Dr. Frederick L. Dunlap, associate chemist, and George R. McCabe, solicitor of the Department of Agriculture.

Plague in Hawaii.—Four cases of bubonic plague are reported in Honolulu, with three deaths. All the patients were Japanese and on the same plantation. Samples of imported oriental foods were examined, but no clue to the infection was obtained. Several rats had died on the plantation and their bodies had been burned.

Medical College Association Meeting.—At the annual meeting of the Association of American Medical Colleges at Washington, May 6, Dr. Henry B. Ward, Lincoln, Neb., was elected president, and Dr. Fred C. Zapffe, Chicago, was re-elected secretary-treasurer. A report of the meeting will appear in THE JOURNAL later.

American Society of Sanitary and Moral Prophylaxis.—At a meeting held in New York City, April 11, the following officers were elected for the ensuing year: President, Dr. Prince A. Morrow, New York City; vice-presidents, Prof. Edwin R. A. Seligman, Dr. Stephen Smith and Mr. Francis Lynde Stetson; secretary, Dr. Edwarl L. Keyes, Jr.; and treasurer, Dr. Smith Ely Jelliffe, all of New York City.

Mosquito Fighters Meet.—The fourth annual meeting of the American Mosquito Extermination Society was held at the Union League Club, New York City, April 19. Dr. L. O. Howard, Washington, D. C., the government's chief entomologist, was present and told of his work. Dr. E. Porter Felt, the state entomologist, emphasized the need of state appropriation in order to study the habits of the pest.

Health of Canal Zone.—The health conditions of the Canal Zone for March are reported to be excellent. Since August last the number of sick among the employés has steadily decreased, until it is now 19.40 per 1,000, as against 33.72 in August. Among the 4,600 white employés there were only two deaths from disease during the month of March, equivalent to an annual rate of 5.17 per 1,000. Among the 1,200 American women and children living in Canal Commission quarters there were no deaths and little sickness. The mortality from all causes for March was: Negroes, 48.50 per 1,000; white employés, 15.69, and American whites, 10.34 per 1,000.

American Anti-Tuberculosis League.—The American Anti-Tuberculosis League, organized to prevent consumption, to educate the people, to secure state aid and to establish hospitals, etc., will hold its next meeting, June 1 to 4, 1907, at Atlantic City, N. J. Special subjects for discussion will be "Tuberculosis and Milk" and "Tuberculosis in the Negro Race." Hon. Nathan Strauss, New York, who has done so much for the bettering of milk supply, will preside at the meeting which takes up the subject of milk. Further information may be obtained from Dr. George Brown, Atlanta, Ga., president and executive officer.

Carter Suggested for Opium Commission.—In the event of an international conference being called to inquire into the use of, trade in and laws pertaining to opium in eastern countries, it is probable that one of the members of the commission will be a representative of the United States, and for this place the Leavenworth *Times* suggests Major E. Champe Carter, Medical Department, U. S. Army, as the best man, since he was a member of the opium commission appointed by Secretary Taft when governor of the Philippines, as he is said to know more about the opium question than any other man in the United States, and as no representative could be found who is so familiar with the subject and so well able to plan for the elimination of the evils of the opium traffic as he.

The International Congress on Tuberculosis.—The assembling of this congress in Washington during the last ten days of September and the first ten days of October, 1908, will call together a large number of distinguished men from all parts of the world. The National Association for the Study and Prevention of Tuberculosis has chosen the time and place for the congress to suit the pleasure and convenience of the foreign members and delegates, and the officers believe that the congress will be a success and will demonstrate the interest of the American public in the subject of tuberculosis, notwithstanding the fact that the country will be preoccupied at the time with an exciting political campaign. A tuberculosis exhibition, which is expected to surpass anything of the sort ever attempted, is contemplated. In addition to its interest to the medical profession the congress will appeal to public sanitarians and philanthropists, to those interested in social science, and to veterinarians. The various departments of the government have become interested and are making preparations which will ensure the proper representation of the United States. The National Association for the Study and Prevention of Tuberculosis will provide a fund of $100,000 for the expenses and this sum will come chiefly from the private purses of a few wealthy and enlightened men who see in this congress an opportunity to give a tremendous impetus to the movement against tuberculosis.

CANADA.

Army Medical Corps in Winnipeg.—An army medical service corps was organized in Winnipeg, April 16. Dr. William Webster will command the new unit, with rank of major; Dr. Borden will be second in command, with rank of captain, and Drs. D. S. McKay and Boardman will be lieutenants.

Inspection of Schools.—Medical inspection of schools in Montreal for the six months ended March 31, showed that 20,682 pupils were affected. Montreal's medical health officer is urging the council to provide funds for the continuance of this work.

Canadian Wins English Prize.—Dr. Don. Armour, London, England, University of Toronto, 1904; house surgeon in Toronto General Hospital in 1904 and 1905, has been awarded the Jacksonian prize, for 1906, by the Royal College of Surgeons, England. This is the first time the prize has gone to a Canadian. The title of his essay was "Diagnosis and Treatment of Those Diseases and Morbid Growths of the Vertebral Column, Spinal Cord and Canal, Which Are Amenable to Surgical Operation."

Personal.—Dr. Kenneth Panton, Portland, Ore., is passing through Canada *en route* to London, Eng., for graduate work in connection with the Fellowship of the Royal College of Surgeons.——Dr. J. R. Jones, Winnipeg, professor of medicine in the University of Manitoba, who has been recuperating in Toronto from a fractured pelvis received in a runaway accident, is going to England.——Dr. Robert Law has been confirmed as medical health officer of Ottawa.——Dr. Andrew B. Eadie, Toronto, is critically ill.——Dr. Frederick B. Bowman, Kingston, has been appointed assistant in the United States Government Laboratory, Manila, P. I.——Dr. Edwin S. Popham, Winnipeg, has returned home after a few weeks in Chicago.——Dr. William P. Caven, Toronto, is at Atlantic City.——Dr. Harry J. Watson, United States immigration officer at Winnipeg, is recuperating in Toronto after an operation for duodenal ulcer.——Dr. George R. McDonough, Toronto, has returned from Egypt.

FOREIGN.

Venereal Prophylaxis in German Technical Schools.—By a recent ministerial decree the directors of the technical schools are instructed to make provision to have the medical inspectors of the schools give instruction in sexual hygiene at the beginning of the school year.

Postage Stamps to Raise Funds for Public Health Campaign.—A special stamp is now on sale in Germany at a slightly increased price (5 pfennige), the surplus to be devoted to forwarding the movement against infant mortality, tuberculosis and other preventable ills.

Additions to a Scottish University.—On April 23, the Prince of Wales formally opened the new buildings of the Glasgow University. The buildings are for the departments of physiology, materia medica, forensic medicine, public health and natural philosophy, and have cost between $400,000 and $350,000.

Stuttgart to Have a Club House for Physicians.—The will of the late professor of surgery at Stuttgart, Germany, leaves $10,000 toward building a physicians' club house, $5,000 to the medical mutual benefit society, and $2,500 to one of the public hospitals. Prof. v. Burckhardt succumbed to intestinal cancer.

Official Title for von Leyden.—The title of Acting Privy Councilor (Wirkl. Geh.-Rath) has been conferred on Prof. E. von Leyden of Berlin, with the title of "Excellenz." This is the first time that a member of the profession representing internal medicine has had this title conferred on him by the Prussian authorities.

Smallpox Quarantine in France.—A quarantine has been declared against persons entering France from Metz, and they are not allowed to pass unless they submit to vaccination. If the epidemic at Metz continues (7 cases were reported for the last week in March), absolute quarantine measures will be enforced, it is announced.

Recrudescence of Plague in Australia.—For the seventh year in succession Sydney, New South Wales, has been visited with an epidemic of plague. The recurrences each year have varied in severity, but this year the outbreak has been in the heart of the city and has proved a serious one. According to the

Australasian Medical Gazette, there is every prospect of indefinite recurrences. So far 30 cases have occurred, with 8 deaths.

Free Lance Congress of French General Practitioners.—This congress is a remarkable evidence of the active organization of the medical profession now going on in all countries. The general practitioners of France have felt for some time that their practical interests were not sufficiently regarded by the powers that be, not even by the physicians connected with the teaching forces of the universities. They are state institutions in France and as such are liable to the danger of falling into bureaucratic ruts. The protest has been growing more and more general, and on April 13 nearly 1,300 medical men from all over the country gathered at Paris to discuss the two burning subjects, "Reform in Medical Education," and the "Enforcement of the Free Choice of a Physician by the Injured." More bedside instruction was demanded, more teachers, more graduate courses, etc. It was shown that while Berlin has 62 professors and 107 privat docents for 1,192 students, Paris has only 73 professors for 3,000 students, and no privat docents. The subject of "Medical Education in Germany" was presented by Jayle, while Jarvis reviewed the field and present status of medical education in Great Britain, and Koenig described "Medical Education in the United States." The organization of a body of privat docents, outside the official faculty, and remunerated directly by the students, was discussed and steps taken in the matter. While the speakers all held up for admiration the methods of medical education in other countries and pointed out the defects in the present system in France, yet all agreed that clinical instruction in the French schools bears favorable comparison with the best elsewhere in Europe, only there is not enough of it. A number of professors took an active part in the proceedings.

LONDON LETTER.

(*From our Regular Correspondent.*)

LONDON, April 20, 1907.

Conferment of Unusual Honors by the King on His Medical Attendants.

King Edward, whose appreciation of the medical profession is well known, has conferred a most unusual honor on Sir Frederick Treves and Sir Francis Laking in recognition of "their great skill and unremitting attention" during his dangerous illness in 1902, when the former operated on him for appendicitis. He has granted an "honorable augmentation" to their arms, which consists in the addition to their shields of one of the lions of the royal arms. An analogous augmentation of the Prince of Wales' feathers was granted to the late Sir William Gull for his services when the King was Prince of Wales and suffered from a dangerous attack of typhoid fever. But professional services appear never to have been recognized before by the incorporation of the royal arms with those of a physician or surgeon. For an instance of augmentation with the royal arms it is necessary to go back to the time of Charles II, who added certain items to the shields of the Penderells of Boscobe and to the Lanes, because members of these families were instrumental in saving his life after the battle of Worcester.

The Manifesto in Favor of Alcohol.

The controversial storm provoked by the manifesto in favor of the use of alcohol continues. The inner history of the document has been made public, and several of the distinguished signers do not appear to be satisfied with their position. It appears that the manifesto was got up by a Mr. Williams, a barrister and writer on economic subjects, but not in any way connected with the medical profession. Sir William Gowers, whose name added weight to the document, has declared that if it were presented to him to-day he would not sign it. He complains that it has been twisted to justify anything; whereas, the essential point was to justify the use of alcohol in acute disease. He would not have signed it if he had known that it originated with the laity. Mr. Jonathan Hutchinson was under the impression that Mr. Williams was a physician when the manifesto was presented to him. However, it was sufficient for him that it had been signed by Sir William Gowers, Dr. Pye Smith and Sir Dyce Duckworth, and he agreed with them that people are beginning to consider alcohol a poison, which it certainly is not, and that these extravagant views ought to be corrected. Sir Victor Horsley, who is one of the foremost advocates of teetotalism in the profession, speaking at a temperance meeting, said that the medical profession asked four years ago that every child should be taught the principles of health and temperance. When he said the medical profession, he added facetiously, he did not mean "his 16 *bon-vivant* friends" who had signed the manifesto.

The Epidemic of Cerebrospinal Fever.

The epidemic still continues and has appeared in fresh centers and reappeared in places from which it had disappeared. In Belfast during the week ended April 16 there were 27 fresh cases, and 42 patients remained under treatment; the total number of cases now amounts to 283, with 177 deaths. Cases are now being reported from better-class districts hitherto exempt from the disease. The deaths of three adults during the past few days has created a feeling of danger in the community. The first of these deaths was of Nurse McDonnell, who contracted the disease from a patient suppposed to be suffering from pneumonia. Within 24 hours Constable Egan, a robust and athletic man, was stricken, and died after five hours' illness. A few hours later a man named Spence, while walking in the fashionable suburb of Ballynafeigh was taken suddenly ill and died after a few hours while being conveyed home in an ambulance. In Scotland, during the week ended April 30, 30 deaths from the disease were registered in Glasgow, 8 in Edinburgh, 3 in Leith, 2 in Dundee, and one in Greenock. In Glasgow for the week ended April 12 there were 100 patients under treatment. Other cases have occurred in the surrounding towns. In England cases are reported from various parts of the country—Nuneaton in Warwickshire, Leamington and Gateshead in Northumberland, and Leicester.

An Imperial Conference on Hygiene and Temperance.

In order to stimulate general interest in the scientific teaching of hygiene and temperance as an integral basis of national education, and to bring before the country during the visit of the colonial premiers trustworthy information as to what is done in various parts of the empire, a conference will convene on St. George's Day, April 23. Arrangements have been made for appointing educational experts to describe colonial systems of teaching the two subjects. Papers will also be read by continental scientists.

VIENNA LETTER.

(*From Our Regular Correspondent.*)

VIENNA, April 13, 1907.

Opening of a Plague Grave.

During the process of laying a new street in the center of the city of Vienna a place was discovered which had apparently been a receptacle for refuse and house waste in olden times. The laborers were, however, rudely frightened by finding underneath the heaps of material several skeletons which were embedded in layers of lime. This at once suggested that the place had been used as a burial pit during the last epidemic of pestilence (1789), when 12 per cent. of the inhabitants of Vienna fell victims to the disease. The epidemic lasted from March to November, and it had become custom to inter the corpses in a layer of lime and clay, with a view of preventing further infection. The reopened pest cave was at once closed, and the men were subjected to an extensive disinfection. For scientific purposes particles of the clothes remnants, the soil and some dust from within the cave were taken, to be examined bacteriologically. Although similar incidents have been reported in other places, there is no instance known that in modern times an outbreak of pest has been traced to this source.

Prophylaxis Against Epidemic Meningitis.

The board of hygiene in Vienna has recently issued an order to all district officers of health, as well as a public notification, dealing with the means of fighting the spread of meningitis, which during the last year has been epidemic throughout the empire. As the best means for prophylactic treatment the instillation of pyocyanase is recommended. This is a serum produced by the action of the bacillus pyocyaneus on certain tissues. Dr. Gehle, an assistant at the pediatric clinic of Vienna, has instituted extensive experiments with this substance and has found that the diplococci or rather meningococci, which are found so often in the mucous secretions of the nose and pharynx of persons suffering from cerebrospinal meningitis are destroyed within 48 hours if a few drops of the pyocyanase are placed on the mucosa of the nose. This new remedy is not an antitoxin, but acts more like a disinfectant, perhaps, by influencing the mucosa in such a way that its secretion becomes antagonistic to the diplococci. In the order issued by the board it is recommended that every physician, nurse, relation or friend of the patient should submit themselves to the prophylactic treatment, which is entirely devoid of danger, and each physician is requested to submit his observations on this point to the board of health. The quantity of pyocyanase at disposal in Vienna is as yet rather small, but in the Children's Hospital a laboratory has been fitted out with all the apparatus necessary for its production.

Pharmacology

Scientific Pharmacy Abroad Worthy of Imitation.

We have before us a pamphlet which we refer to American manufacturers of pharmaceuticals for their careful consideration. The pamphlet is entitled "Directions for the Examination of the Pharmaceutical Specialties. E. Merck, Darmstadt." It has been prepared in response to a request of the German apothecary society, and contains descriptions of Merck's proprietary products. For each product the description states the chemical constitution, the physical properties, and the *tests whereby the identity and purity of the product may be verified.* American manufacturers could well afford to offer similar publications. Since physicians are beginning to realize that many products are not what they pretend to be, reputable manufacturers will no doubt court the investigation of their preparations. They can do this most effectually by placing at the disposal of those interested tests whereby the quality of their product may be verified.

MEDICINAL FOODS.

Report of the Council on Pharmacy and Chemistry of the American Medical Association.

The following report was submitted to the Council by the subcommittee which examined the medicinal foods:

To the Council on Pharmacy and Chemistry:—In order to determine the food value of any food product it is necessary to consider the following points: Chemical composition; available potential energy; absorbability and cost. No attempt is made in this article to discuss each of these features separately, but they are utilized as required.

The ingredients on which the food value of any article of food depends are the proteid substances, carbohydrates, fats, certain inorganic bodies and—under certain conditions—alcohol. The amount of each of these present in a preparation must be established by chemical analysis. From the results thus obtained it is possible to calculate the potential energy represented by a given food product. In this report the potential or food value is expressed in the large or kilocalorie, that is, the amount of heat required to raise the temperature of one kilogram of water one degree centigrade.

Foods are more or less completely absorbed, and the total energy of some of the bodies absorbed is not completely utilized by the animal organism, because the oxidation of certain substances is incomplete. The factors employed in this report for expressing in calories the actual amount of energy utilized by the system are 4.8 for proteid substances, 4.1 for carbohydrates, and 9.2 for fats. Various factors are employed for this purpose, for example, 4.23 for proteids of animal origin and 4.1 for proteids derived from a mixed diet, but the above are satisfactory for all practicable purposes.

The accompanying table embodies the results obtained by submitting all the well-known so-called "predigested foods" to chemical examination. In most cases two samples of the same brand were purchased at an interval of about six months. All the analyses were made before Jan. 1, 1907. Inasmuch as the chief object of this investigation is to ascertain the food value of the products under consideration, the figures represented by the first six columns will be passed over with this comment that some of the preparations contain much glycerin which does not, so far as known at present, possess any recognized food value, although there are a number of experiments on record to indicate that it influences metabolism.

The amount of inorganic material varies materially, from 0.18 to 1.61 per cent. It consists, so far as tested, of salts of sodium, potassium and calcium, and phosphates and chlorids.

The percentage of nitrogen accredited to each of these products represents the total amount of nitrogen, irrespective of the nature of the nitrogenous substances. This basis is giving the several preparations more value as food products than they actually represent, but inasmuch as it is difficult to ascertain how much of each nitrogen bearing substance present will be utilized by the system, the benefit of the doubt is given to the preparations, and the entire percentage of nitrogen present in each is made the basis of proteid contents. The proteid matter present in these foods consists largely of peptones and proteoses. The latter correspond to less advanced stages of hydrolysis than the former, but for dietetic purposes they may be regarded as of equal value.

By multiplying the percentage of nitrogen found by the factor 6.25 we obtain the percentage of nitrogenous matter (proteids) contained in the various preparations. It should be stated in this connection also that the factor 6.25 is probably a little too high. By using this factor the percentage of nitrogenous matter present in the several products investigated varies from the lowest, 0.43 per cent., to the highest, 6.38 per cent. By multiplying the number of grams of nitrogenous matter present in 500 grams of material by the factor 4.8 it is found that the potential energy available by the nitrogenous matter varies from 10.3 calories to 153.1 calories. Five hundred grams of the material is made the basis of calculation, because it approximates a pint, the amount usually believed to

TABULATED RESULTS OF

No.	Name of Preparation.	Name of Manufacturer.	Price per bottle.	No. of Cc. in bottle.	Cost per 500 Cc.	Reaction.	Specific gravity.	Per cent. non-volatile residue.	Glycerine and undetermined matter.
1.	Carpanutrine	John Wyeth & Brother	$1.00	325	$1.54	Acid	1.090	39.00	28.45
2.	Carpanutrine	John Wyeth & Brother	1.00	325	1.54	Acid	1.090	34.40	21.29
3.	Liquid Peptones	Eli Lilly & Company	1.00	450	1.11	Neutral	1.029	15.18	3.63
4.	Liquid Peptones, with Creosote	Eli Lilly & Company	1.00	450	1.11	Neutral	1.052	22.40	4.34
5.	Liquid Peptonoids	Arlington Chemical Company	1.00	425	1.18	Acid	1.047	16.66	0.23
6.	Liquid Peptonoids	Arlington Chemical Company	1.00	425	1.18	Acid	1.049	18.98	2.02
7.	Predigested Beef	H. K. Mulford Company	1.00	475	1.05	Acid	1.010	10.33	3.40
8.	Predigested Beef	H. K. Mulford Company	1.00	475	1.05	Acid	1.011	11.70	4.37
9.	Nutrient Wine of Beef Peptone	Armour & Company	1.00	425	1.18	Acid	1.077	31.27	14.97
10.	Nutrient Wine of Beef Peptone	Armour & Company	1.00	425	1.18	Acid	1.076	30.10	13.70
11.	Nutritive Liquid Peptone	Parke, Davis & Company	1.00	500	1.00	Acid	1.039	16.61	1.02
12.	Nutritive Liquid Peptone	Parke, Davis & Company	1.00	500	1.00	Acid	1.038	17.10	1.95
13.	Panopepton	Fairchild Brothers & Foster	1.00	325	1.54	Acid	1.063	22.00	2.60
14.	Panopepton	Fairchild Brothers & Foster	1.00	325	1.54	Acid	1.023	22.40	4.86
15.	Peptonic Elixir	Wm. Merrell Chemical Company	1.00	475	1.05	Acid	1.050	18.76	3.21
16.	Tonic Beef S. & D.	Sharp & Dohme	1.00	400	1.25	Acid	1.048	20.28	12.91
17.	Tonic Beef S. & D.	Sharp & Dohme	1.00	400	1.25	Acid	1.046	19.67	12.63
18.	Liquid Peptone	Stevenson & Jester Company	1.00	450	1.11	Neutral	1.039	3.67	.44
19.	Cow's milk (3.8 per cent. fat)	.....	.....	.....	.05	.....	1.033	13.00	.....

*Total calories *per diem* dose includes the calories of alcohol in

be present in the various trade packages, and because it affords a ready basis of calculation.

There are no fatty substances present in these products; their food value from this point of view is, therefore, *nil*.

Another group of food constituents to be considered in these preparations is the carbohydrates. They are represented by cane sugar, maltose, dextrin and invert sugar. Lactose is probably also present in some, but it is impossible to establish this. The total amount of carbohydrates present is represented by the column headed "after inversion." By referring to these percentages it will be found that the variation ranges from 0.55 to 15.57. By multiplying the number of grams of carbohydrates present in 500 grams of the foods by the factor 4.1 we obtain the potential energy represented by the carbohydrate, which varies from 11.3 to 319.2 calories. By adding together the total calories represented by 500 grams of the foods in question, of both the proteids and carbohydrates, we have a variation ranging from 54.7 to 397.5 calories. The total food value of an equal quantity of milk, including fat, approximates 360 calories.

The value of alcohol in the hands of the physician is recognized by most practitioners and is frequently resorted to in severe cases of illness. Its value as a food product pure and simple in disease is, however, an open question. There is no doubt whatever but that it acts to a certain degree as a food even here, not as a tissue builder, but as a saver of fat and carbohydrate material, and in order to give the preparations in question full value as food products, the calories, represented by the alcohol, are credited to each preparation, as are the proteids and carbohydrates. The factor usually recognized for expressing the calorific value of alcohol is 7. The percentage of alcohol by weight present in the various preparations under consideration, varies from 12.0 to 18.8. By multiplying the number of grams of alcohol present in 500 grams of material by 7, the number of calories varies from 420 to 658.

On looking over the literature and printed matter distributed by some manufacturers, the physician is frequently left under the impression that these preparations contain all the essential constituents necessary for maintaining normal nutrition of the body, as is clearly shown by the following quotation: "Contains sufficient nutritive material to maintain normal nutrition of the body, a valuable food in typhoid fever, pneumonia, tuberculosis, . . . and all the conditions of the system associated with enfeebled digestion and malnutrition."

In order to show the insidiousness of such representations it is only necessary to give the actual food value of the average daily dose (the average amount to be taken for twenty-four hours) recommended by the various manufacturers for their products. The average adult daily dose recommended varies from 50 to 150 c.c. The total available calories per daily dose based on the proteid and carbohydrate bodies varies from 9.8 to 110.5. Adding to these figures the amount of energy represented by the alcohol, in each case, the total available calories varies from 55.0 to 299.5. The number of calories required *per diem* by a man doing very moderate work approximates 3,000. In sickness this amount is not required, but on the average it should not fall much below 1,500 calories during twenty-four hours.

In order to get a fair conception of the actual food value of these various preparations, it is desirable to make some comparison which can be readily comprehended by every physician. The amount of good milk necessary each twenty-four hours to sustain the vitality of a patient during a serious illness is not less than 64 ounces, or approximately 2,000 c.c. The food value in calories represented by this amount of good milk may be placed at 1,430. This includes not only the proteid and carbohydrate matter, but the fat as well. By comparing this available potential energy with the total energy available in the predigested foods under consideration, it can be readily seen that if a physician depends on the representations made by some of the manufacturers, and feeds his patient accordingly, he is resorting to a starvation diet. The largest number of available calories, including alcohol, present in any of the recommended daily doses, is less than one-fifth of the number of calories represented by 2,000 c.c. of milk; and the calories represented by the daily dose of the preparation poorest in food products is only one-twenty-fifth of the amount present in 2,000 c.c. of milk. These figures tell their own story.

Making 2,000 c.c. of milk the basis of calculation, and estimating the amount of the various preparations required to yield this number of calories, it is found that the quantity to be administered daily to supply 1,430 calories, including alcohol, varies from 716.2 to 1506.2 c.c. In other words, it will be necessary, in order to supply 1,430 units of energy *per diem*, to administer the amount of the various products in quantities found within the above limits. In many cases the amount of alcohol exhibited by these quantities would keep the patient in an alcoholic stupor continually. The cost necessary to supply this energy varies from $1.48 down to $3.39. Compare these prices with the cost of two quarts of milk. Is farther comment necessary.

The average number of calories represented by 500

EXAMINATIONS OF MEDICINAL FOODS.

No.	Ash.	Per cent. nitrogen.	Per cent. nitrogenous matter (6.25).	Calories as proteids in 500 grams.	Carbohydrates. Before inversion.	Carbohydrates. After inversion	Calories as carbohydrates in 500 grams.	Calories as proteids and carbohydrates in 500 grams.	Alcohol. By volume.	Alcohol. By weight.	Calories as alcohol in 500 grams.	Average recommended adult dose per diem in Cc.	Calories as proteids and carbohydrates per diem dose.	*Total calories in per diem dose.	No. Cc. required per diem to supply 1430 calories.	Cost per diem to supply 1430 calories.
1.	0.93	0.685	4.28	102.7	4.22	5.34	109.5	212.2	15.5	12.5	437.5	60	25.5	78.0	1100.7	$3.39
2.	1.09	0.999	6.24	149.8	3.73	5.78	118.5	268.3	17.3	14.0	490.0	60	32.2	91.0	942.9	2.91
3.	1.00	0.719	4.50	108.0	0.00	6.05	124.0	232.0	22.0	18.0	630.0	150	69.6	258.6	829.4	1.84
4.	0.75	0.615	3.84	92.2	0.00	13.47	276.1	368.3	22.0	18.0	630.0	150	110.5	299.5	716.2	1.59
5.	0.93	0.789	4.93	118.3	6.56	10.57	216.7	335.0	17.5	14.0	490.0	150	100.5	247.5	866.6	2.06
6.	0.90	0.725	4.53	108.7	6.83	11.53	236.4	345.1	17.8	14.1	493.5	150	103.5	251.5	852.7	2.01
7.	0.18	0.381	2.38	57.1	4.29	4.37	89.6	146.7	19.7	16.0	560.0	150	44.0	212.0	1011.7	2.13
8.	0.19	0.415	2.59	62.2	4.50	4.55	93.3	155.5	19.0	15.5	542.5	150	46.7	209.5	1024.3	2.15
9.	0.23	0.102	0.64	15.4	11.67	15.43	316.3	331.7	21.5	17.5	612.5	100	66.3	188.8	757.4	1.79
10.	0.40	0.069	0.43	10.3	13.10	15.57	319.2	329.5	20.9	17.0	595.0	100	65.9	184.9	773.3	1.82
11.	0.84	0.298	1.86	44.6	12.58	12.89	264.2	308.8	23.0	18.8	658.0	120	74.2	232.1	739.5	1.47
12.	0.80	0.186	1.16	27.8	17.78	13.19	270.4	298.2	21.8	17.7	619.5	120	71.5	220.2	779.2	1.56
13.	1.10	1.020	6.38	153.1	5.76	11.92	244.4	397.5	18.5	15.0	525.0	50	39.8	92.3	775.0	2.39
14.	1.16	1.013	6.33	151.9	5.96	10.05	206.0	357.9	20.9	17.0	595.0	50	35.8	95.3	750.2	2.31
15.	1.55	0.406	2.54	61.0	11.40	11.46	234.9	295.9	18.8	16.5	577.5	90	53.3	157.2	818.6	1.72
16.	1.61	0.544	3.40	81.6	1.48	2.36	48.4	130.0	14.9	12.0	420.0	50	13.0	55.0	1300.0	3.25
17.	1.54	0.524	3.28	78.7	1.49	2.22	45.5	124.2	16.1	13.6	455.0	50	12.4	57.9	1234.4	3.09
18.	0.87	0.288	1.81	43.4	0.55	0.55	11.3	54.7	14.0	12.0	420.0	90	9.8	85.4	1506.8	3.34
19.	0.07	0.560	3.50	84.0	4.80	4.80	98.4	182.4	....	....	.....	2,000	7.3	1429.6	2000.0	0.20

the liquid medicinal foods and the calories of the fat in milk.

grams of these products as proteids and carbohydrates is 260.6. The total average calorific value of the same amount of these foods is 802.4.

The number of calories represented by good brandies or whiskies, containing 45 per cent. of alcohol, is 1,575. In other words, the average calorific value of these preparations is approximately one-half that contained in either good brandy or whisky. From this it must not be concluded, however, that equal quantities of brandy or whisky are twice as valuable as the medicinal food because the medicinal foods contain some material which can be utilized in building tissue, which is not the case with either whisky or brandy.

From the above it can readily be seen that not only is the patient receiving a starvation diet when the physician resorts to these preparations, but that the unfortunate sick are also compelled to pay exorbitant prices for the amount of actual nutritive matter received.

It is urged in justification of the use of preparations of this class that they contain constituents not found in our ordinary foods and in a more perfectly assimilable condition. As pointed out above, these so-called predigested foods contain no fats; the carbohydrates in them are the ordinary sugars present in our common foods, while the proteins belong to the peptone or albumose class. It is for these latter that the greatest claims are made, but even here no value can be pointed out not found in whey, peptonized full milk or peptonized skimmed milk.

There is likewise another point of considerable importance to consider in this connection. The terms *peptone* and *albumose* include bodies of very uncertain composition, and their suitableness as food substances depends largely on how they are prepared. Animal experiments have shown that nitrogen equilibrium may be maintained, for a time at least, by use of enzymic hydrolytic products of the proteins, even where the hydrolysis has been carried far beyond the so-called peptone stage, but it appears to be likewise true that the mixtures secured by acid or high temperature steam hydrolysis have no such value. Some of these, indeed, may exhibit a toxic behavior. This is true in particular of some of the commercial varieties of peptone, and until more is known of the source of the bodies of protein character employed in the make-up of these "predigested" mixtures it is unwise to assume anything concerning the food value of the nitrogen compounds found in them by analysis or even to dignify them by the name of foods.

Your subcommittee makes the following recommendations:

1. No liquid medicinal or predigested food shall be approved by the Council which contains less nutritive value, exclusive of alcohol and glycerin, than milk.

2. At least one-fourth of the nutritive value of the food, exclusive of alcohol and glycerin, shall reside in the nitrogenous matter.

3. The label shall bear a statement whether the peptones and proteoses are produced by enzymes or otherwise.

4. No package or advertising matter of any character shall bear representations which would lead the physician to believe that a food contains more nutrients than it actually does, or that it alone can sustain life for a limited period, if the dose advised contains less than 100 calories, exclusive of alcohol and glycerol, per diem dose.

5. Solid or partially evaporated products shall conform to the above standards when calculated to the water content of milk, viz., 88 per cent.

The report of the subcommittee was adopted by the Council and ordered published. W. A. PUCKNER, Secretary.

ANASARCIN AND ANEDEMIN.

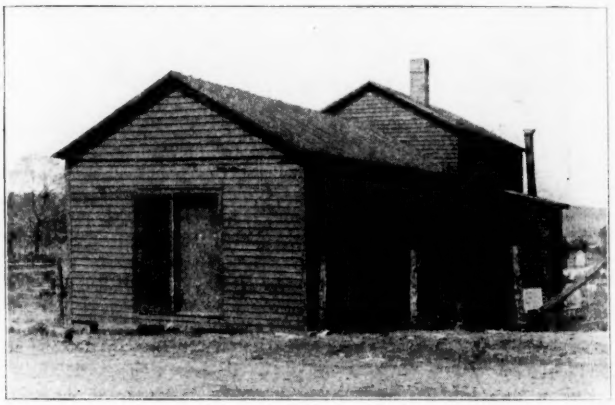
(*Concluded from page 1536.*)

ANEDEMIN.

If we are disposed to doubt the vaunted scientific ability of the Anasarcin Company, we are forced to admire their business methods, at least, if there is any truth in the saying that imitation is the seal of success. Anasarcin has had this rather undesirable compliment paid to it, for its native town of Winchester has given birth to another remedy, Anedemin, which looks like a fair-haired twin brother. The Anedemin Company has adopted Anasarcin almost bodily. The name—"opposed to edema"—is about as close as the copyright laws permit. The pharmacologic and therapeutic claims agree almost literally with those of Anasarcin and contain the same exaggerations and dangerous mis-statements. There is the same emphasis on free purgation with Epsom salts. The dose is the same. Both are marketed at two dollars for a box of 100—only the Anedemin people have adopted the prize package device of throwing in 20 or 30 tablets extra, for good measure, and give a discount of 75 cents or so.

In short, the Anedemin Company has appropriated all of Anasarcin which they considered of any value. It is, therefore, rather suggestive that they drew the line at the formula. Anasarcin is said to contain squill, sambucus and oxydendron; Anedemin discards the oxydendron and reinforces the squill with strophanthus and apocynum. Notwithstanding this material change in composition, the actions are described as identical; this is again rather suggestive.

The Anedemin Company, like the Anasarcin Company, scorns crude drugs and claims to use only the isolated principles. It was saved the trouble of discovering active principles for strophanthus and apocynum, for these are known; but it managed to find some scope for its inventive genius, "both drugs being so chemically treated and disposed as to absolutely eliminate all objectionable and disagreeable properties and effects" so as to convert a vasoconstrictor action into a dilator action; so as to



Laboratory and Warehouse of the Anasarcin Chemical Company, Winchester, Tenn.

deprive apocynum of its characteristic nauseant effect. Who can say that the days of miracles are past? Even this is not the limit of Anedemin alchemy; if we are to believe their claims, they have succeeded in forcing strophanthin, apocynum, scillain, etc., to combine with each other: "It is a *definite chemical compound* of the active principles" of these drugs! This makes the achievements of Emil Fischer in synthesizing sugars and proteids appear as mere child's play.

Since the formulas were completed, however, clinical reports have been numerous enough—almost too numerous, if we are to believe them. Anedemin has been on the market for less than three years; the circulars emphasize that testimonials and endorsements are not solicited. Nevertheless, we are told that it is "endorsed by over fifty thousand clinicians throughout the United States." Since the total number of physicians in the United States and Canada is only about 128,000, this means that nearly every second physician has endorsed Anedemin. The Anasarcin Company solicits endorsements and they seem to do the larger business. Hence the majority of physicians of the United States must have written an endorsement of either Anedemin or Anasarcin, or both. Or is this statement another "invention?" It is a little peculiar that nearly all the endorsements come from small towns in sparsely settled districts; practically none from the centers of population. Does this mean that dropsy is more common in the rural communities than in the cities?

THE INVENTORS OF ANASARCIN AND ANEDEMIN.

Even the newspapers, when they tax our credulity with pretended scientific "discoveries," feel the moral obligation of justifying themselves by telling us something of the personality and experience of the discoverers. We may ask, therefore, who are these expert pharmaceutic and synthetic chemists, these manufacturers of active principles, these skilled clinicians of wide experience, who have "intelligently built up the formula by wide application?" What are we told of these men who ask us to believe, on their mere assurance, in miracles and feats of magic; who tell us that they have converted neutral principles into alkaloids, that they have effected definite chemical compounds between these neutral principles, that they have discovered principles that do not exist, that they have changed the actions of these principles to suit their wishes, that, in short, they have reversed the laws of Nature?

These companies are located in Winchester, Tenn., a town of about 1,500 inhabitants, situated in an agricultural country. The town boasts of neither scientific schools, colleges, universities nor laboratories. The Anasarcin Company was organized in 1902, the incorporators and directors being Dr. John W. Grisard and his sons, Dr. John P. Grisard, B. A. Grisard, and A. F. Grisard, and Will W. Walker, all of Winchester. Dr. John W. Grisard seems to be the originator and promoter of Anasarcin. W. E. Walker is an insurance solicitor of Winchester and is not actively identified with the business. We are informed that he owns but a single share of stock having a face value of $100, and that he was added to the company in order to comply with the laws of Tennessee, which require five directors for any corporation. Dr. John W. Grisard, the father, has practically retired, but still has a general supervising interest in the business. There is no regularly licensed pharmacist or chemist connected with the company. The office is in the rear of a jewelry store in the business part of Winchester and on the second floor above. According to our reporter, an office force of about ten stenographers and clerks handles the correspondence and labels and sends out the preparation which is made in a crude frame building located on a side street and without laboratory equipment. According to our reporter, the work is done by the Grisards and a colored man.

The Anedemin Chemical Company was organized in 1905 with a capital of $20,000, the incorporators and directors being Dr. T. B. Anderton, Floyd Estill, J. J. Lynch, J. M. Littleton and I. G. Phillips, all residents of Winchester, and all lawyers with the exception of Dr. T. B. Anderton. A Mr. Gordon, a clerical employé of the company, is reported to have active charge of the business, to prepare the medicine and conduct the correspondence. The office headquarters, laboratory and complete outfit of the Anedemin Company comprises two rooms over the law office of Estill and Littleton. No one connected with the company is a regularly licensed pharmacist or graduate chemist.

Of the six physicians located in Winchester, three of them (50 per cent.), are engaged in the dropsical cure business. Poor Winchester! Aside from their connection with these two nostrums, these physicians may be estimable and worthy citizens, but where, pray, did they find the extensive clinical facilities and pharmaceutical knowledge necessary for their wonderful and epoch-making discovery? Were they aided in their scientific work by the four lawyers connected with the Anedemin Company or by the insurance solicitor who is a director of the Anasarcin Company? Did the 1,500 inhabitants of the town furnish the vast clinical material necessary for discovering and working out the f rmulas of these two preparations? If so, we fear that dropsical affections are much more prevalent in Winchester than in any other known spot on the globe. This matter should be investigated. Without doubt the vital statistics of Franklin County would be most interesting and we commend them to the special attention of the medical profession in Tennessee.

Naming of Carbon Compounds.—Oxy indicates an oxid, thus ether U. S., $CH_3.CH_2.O.CH_2CH_3$, is ethane-oxy-ethane. Often "oxy" is used to indicate hydroxyl, thus phenol is called oxybenzene, resorcinol of phendiol is called dioxy-benzene, etc.—*Pharm. Rev.*, September, 1906.

Correspondence

The Adaptation of Clinical Methods to the Practicing Physician.

CHICAGO, April 24, 1907.

To the Editor:—Some years ago I was desirous of studying clinically surgical work on a certain anatomic region of the body. Living in Chicago, where clinics in abundance in this department of practice, as in others, are accessible, the project seemed a very simple one. I tried, and to my surprise, found the plan impracticable. At the clinics attended for this one purpose there was presented a great variety of cases, which, not appealing to me then, merely served to consume my time. Thus I wasted hour on hour in order to get at even one case I wished to see. I gave up the idea then and I should have to give up such a project to-day. It was not at that time and is not now practicable to expect a clinician to keep a score of men in mind and telephone them of the cases to appear at his clinics.

Thinking over the reason for my fruitless experience, I came finally to understand the difficulty. Our clinical methods had their origin in the instruction of undergraduates, and they have never been altered to meet the widely different demands of the physician. The undergraduate knows little or nothing of medicine and, therefore, one case appeals to him with about as much interest as another. And this to a large but lesser extent is true also of those postgraduate students who are attempting to cover a field completely with which they are not familiar. And it is, to be sure, true also to a small extent of all physicians, especially when in a half serious mood. But the present clinical arrangements are such that the advantageous utilization by the mature physician of clinical facilities is almost an utter impossibility. The idea of adapting them to the practicing physician has never been worked out, or apparently never conceived.

What is chiefly needed is that the physician shall be enabled to select out of the whole number of cases to be presented in a particular city each day those capable of appealing to him at that time. This selective need is absolutely fundamental in the best mature study, for each individual mind possesses its own store of knowledge different from that of any other mind, and the need for adding to this store is all the time changing. It is this selective aid which makes the index to periodicals and books so valuable that without it education would, except for unusual minds, hardly advance beyond the rudiments. The failure of clinicians to recognize the fundamental value of this indexing principle is responsible for the comparative uselessness of clinical instruction to the physician. What is needed is that the physician shall be directed by a clinical index exactly where to go to satisfy his clinical needs, precisely as he goes to the book index for direction as to printed knowledge. And the evident fact that such an index could not be so perfect or so complete or so exactly applied as that for periodicals or books, does not practically affect the question. Usefulness, not perfection, is the stamp of practicableness.

This plan calls for the indexing of clinical cases of whatever character occurring in all the medical teaching institutions of each of our cities, especially the large clinical centers. To a certain extent it implies interference with the present strictly institutional plan of postgraduate study. If each postgraduate school be compared to a medical periodical the plan proposes not to confine the physician to one magazine, but to open them all before him and by means of an index allow him to read where he may derive most advantage. It represents a positive advance in our methods of medical study. What a tremendous aid it would be to the out-of-town physician to feel that he could at any time step over to a large clinical center and attend case after case exactly, or nearly exactly, as his needs required, instead, as now, of wasting most of his time on cases which only slightly appeal to him. The usefulness to the home physician of clinical instruction would be still more increased because his needs could be exactly fulfilled at any time. On the whole, attendance would be enormously stimu-

lated. The schools would doubtless adopt a uniform low price for each clinic attended.

It goes almost without saying that each clinical center should publish a permanent, frequently revised, schedule of its fixed clinics. This should be done whether the more important and more far-reaching plan I am proposing is adopted or not. Such a schedule would be of great advantage especially to out-of-town physicians.

Granting it possible to index clinical instruction, what form would such an index assume? This instruction is transient, changing each day and completed each day. It must evidently be indexed daily. Each morning, then, a new index of that day's instruction is required. It must also be made readily and cheaply accessible to every medical man in the city. Is there a practical way of issuing such a daily clinical index? Undoubtedly there is. Two possible courses are available. The first necessity whichever plan is utilized is the establishment of a central editorial bureau to whom clinicians may telephone at the close of each day their clinical plans for the day following, so far as these can be foretold. The information may then be made known to the physicians, either (1) by answering telephonic inquiries only, or (2) by printing the material in the evening or night and either mailing it or distributing it by carrier, on the following morning. The first method is undesirable because its usefulness would be too limited. The second, if the distribution were directly to physicians, would possibly be too expensive to be completely practical. A compromise plan of distributing this daily clinical index to certain central stations easily accessible to all physicians (as for example, either all or certain drug stores), seems practical and easily carried out. Clinical plans which could not be foretold early enough for the publication, if sufficiently important, could be telephoned later, perhaps in the morning, to the editorial bureau, there to be on telephonic demand when requested by pnysicians.

Who should bear the expense is a matter for consideration. It is possible that most drug stores would be glad to pay a fair subscription price for a periodical attracting physicians to their stores. It is possible also that certain schools might pay a proportion of the expense, at any rate through the way of advertising. It is certain that large numbers of physicians, especially those from out of town, would either buy copies (which should be on sale) as needed, or would subscribe for a longer or shorter period. At any rate, hundreds of physicians would manage to find means to consult such a clinical index if it existed. Advertising would help largely.

It is important that this project should be executed not by private enterprise, but by collective medical effort. In this way only can full cooperation be secured, and, especially, can objectionable advertising of clinicians be avoided. The names of clinicians should not appear in connection with their clinics. Which shall be the first of our cities to take this important advance step?

ELMER L. KENYON, M.D.

The Great American Fraud.

ROGERSVILLE, TENN., April 19, 1907.

To the Editor:—Undoubtedly untold benefit has resulted from the literature exposing the "patent-medicine" fraud and the methods of the advertising quacks, but, unfortunately, the great body of the people who stand most in need of enlightenment have not been reached by these publications. High-priced magazines, like *Collier's Weekly* and the *Ladies' Home Journal*, do not reach those who live in the rural, and especially in the mountain, sections. Residents in the towns and cities buy the cure-alls and patronize the "quack specialist" to some extent, but nothing to compare with the former class. These are a simple people, often remote from capable physicians, they rely on "doctoring" themselves, making their diagnoses from advertising matter of "patent medicines." They see only a small amount of literature aside from the county paper, which comes to them weekly, and the mass of nostrum advertisements brought by the R. F. D. man. All this literature is read with avidity. The weekly paper, filled with fraudulent advertisements, is read from top to bottom, each week going over the same matter, the medicine advertisements are looked on as advice direct from the editor, a man of great veneration and learning. Many of these families are very poor, and often sell the last cow, their chickens and eggs (thus depriving themselves of the only proper food for the sick available to them), to raise money to send for a supply of "Dr. King's New Discovery for Consumption" or some one's "cancer cure."

Out of many cases I have witnessed permit me to mention two which recently came under my observation:

CASE 1.—In the latter part of May, 1906, I was sent for to amputate the breast of Mrs. M. T., aged about 55, who resided in this town. I found her in great agony. A cake of absorbent cotton covered the entire left breast, arm, side and back, down to the crest of the ilium. About three months prior to this time she had discovered a small, freely movable tumor about the size of a robin's egg in the left breast; it was not attended with pain or any discomfort. She became somewhat alarmed, and her sister, with whom she lived, found an advertisement in their religious paper of "Dr." D. M. Bye and his "Wonderful Oil Cure for Cancer." For many weeks prior to the time I saw her she had been using the "oil cure," with the result that all the skin and part of the flesh was burned off from the extensive region covered by the absorbent cotton, which had become converted into an extensive scab. (I see from one of his letters to her that the application of cotton was directed, and that in her case the "oil" had been somewhat modified, making it stronger.) The condition was septic in the highest degree, suppuration and absorption going on beneath the cake of cotton. I was able to remove the "dressing" by insinuating peroxid of hydrogen beneath it, the whole coming off in one solid mass. The wound had the appearance of a deep-seated burn. The lump in the breast, I was informed, had undergone no perceptible change. The woman was in a pitiable condition and no operation was considered. She died from sepsis and exhaustion in two days after coming under my observation.

The little tumor, while probably malignant, was not a factor in her taking off, but death, in my opinion, was directly due to the corrosive applications made by direction of "Dr." Bye. It appeared that she had paid the Bye concern $500, and at the time of her death a box of the "treatment" arrived at the express office, for which $50 had been paid. The Bye concern refused to take it back or to allow the sister anything whatever for it, although they had guaranteed a cure. Removal of the growth was the only treatment that should have been considered in this case.

CASE 2.—Mrs. B., a widow, with several small children, totally blind from absolute glaucoma, had been told by myself and other physicians that nothing whatever could be done to restore or in any manner to benefit her sight. She was written to by "Dr. Coffee, Eye Specialist," who, without the least idea of the nature of her trouble, undertook to guarantee a perfect cure. The woman was very poor, but she managed to pay him $8 a month for more than two years. When she could no longer raise the necessary amount, he reduced the fee to $5, and this payment was kept up for many months, until it became utterly impossible for her to pay him anything whatever. He used the "absorption" method. His letters to this woman are before me, and are cunning and ingenious. They explain in a graphic manner that a "membrain" has formed over the sight, and just as soon as his medicine "absorbs the groat'a" her vision will be as good as ever, that "vision would not return as long as there was a vestage of membrain," that the "membrain was growing thinner all the time," and that it would return very suddenly, and that it would be disastrous to give up treatment, that maybe one more application of his absorbent would have been sufficient.

Now, what I propose is that an effort be made to raise a fund sufficient to have the *Collier's Weekly* and *Ladies' Home Journal* articles on "patent medicines" published in cheap pamphlet form for distribution among the people who can not be reached in the ordinary way. This would be the most vital blow that could be given this colossal fraud. Such a pamphlet would be read and passed from house to house. It would open up a side to this subject undreamed of by the people to whom I refer. It is almost a universal belief that these "patent-medicine" establishments are the source of all medical and scientific knowledge, that when medical students and physicians

go off to the city to study that Pierce's concern at Buffalo, N. Y., or some other like concern is the great institution of learning the students attend.

Yet it appears somewhat ironical that an organized effort should be necessary to save the fool from the consequences of his folly and to provide protection for the gullibility against which common sense should be a sufficient safeguard.

J. E. MILLER, M.D.

[COMMENT.—"The Great American Fraud" articles are published in pamphlet form by the American Medical Association with permission of *Collier's Weekly*. They make a pamphlet of 146 pages, with 65 illustrations, which is sold at less than cost (see advertising page 39, this issue), the object of the Association being to keep these articles in circulation. In this pamphlet both of the frauds mentioned by our correspondent are exposed.

"Dr." Bye it is who, with the proceeds of his blood money, has established a church in Indianapolis. His "literature" oozes with piety. In it we find that "surely God's blessing attends the oil cure," which for blatant blasphemy would be difficult to equal. He was listed by Adams under the "cancer vampires"—a classification which seems peculiarly appropriate. "Dr." Coffee is also one of the "mail order" specialists. He has illustrated his "literature" with pictures stolen from Haab's "External Diseases of the Eye." These illustrations, with fabricated legends under them, are used to show what miraculous cures are wrought by the "Absorption Treatment as Originated and Perfected by Dr. Coffee." Coffee is strongly endorsed by the editor of his local paper; Mr. Adams wonders whether prompt payment for advertising space enters as an element into the testimonial.

Apropos of the above, we quote the following from the *Ohio State Medical Journal for April*.—ED.].

"There is little doubt that the most effective weapon, now in possession of the medical profession, with which to fight charlatanry is the reprint from *Collier's Weekly*. Put this little book in the home of every man in the state and the problem of suppressing charlatanry is solved. It impresses every reader with its truthfulness. It is an unanswerable document, showing that this traffic in drugs by pretenders to medical knowledge is, indeed and in fact, the Great American Fraud. What are we going to do about it? Shall we recline supinely and expect the people to run after this information? People are not consumed with anxious desire for this knowledge, but they accept it if it is properly offered. Every society should order enough copies for the use of members and for public and private distribution. Secretaries of county societies should see that booksellers and news stands have them on sale. Libraries should be supplied and the reading public should find easy access to information which can not be obtained in any other way. It is not derogatory to professional dignity to engage in the work of rescue of the deluded and misled people. Members of the state legislature should have information on the questions contained in the reprint. If the profession is as zealous as the charlatans the work will prosper."

Teach the Public that Medical Practice Is More Than Drug-Giving.

DODGE CITY, KAN., April 23, 1907.

To the Editor:—Will you permit a suggestion with regard to the fight against the nostrum industry? Much good has been done by Mr. Bok and Mr. Adams by their exposure of the conscienceless exploitation, by nostrum vendors, of human suffering. It is to be hoped that much reformation has been accomplished in medical ranks by the Council on Pharmacy and Chemistry and by medical writers on nostrums and the sins of physicians in prescribing nostrums. But in my opinion the keynote to success in the antinostrum fight has not been sounded. So long as we cling to the habit of prescribing something, whether the patient needs any drug or not, for the sake of holding his business, so long are we encouraging the delusion that the real value of the physician lies in the drugs that he gives, regardless of the fact that at least nine-tenths of his professional training is for the purpose of enabling him to ascertain the condition of the patient—to diagnose the case. When the laity realize this fact they will naturally and inevitably doubt their own ability in self-diagnosis, and will cease to buy the ready-made "dope" that now cumbers the druggists' shelves. They will also cease to furnish remunerative employment for the long-distance advertisers, and all the gentry who have a never-failing cure for certain conditions.

Another thing which ought to be strongly impressed on the laity is that there is in every living organism a power that makes for health; that tends to restore the normal condition when it is overthrown—the *vis medicatrix naturæ* of the old writers. A proper appreciation of this fact will deprive the nostrum vendors of a vast amount of undeserved credit for cures. And if it be said that it will also deprive the attending physician of credit which would otherwise be given him, it is admitted. But is it not better to have the just appreciation of intelligent people than the undeserved adulation of the ignorant? The one will remain constant, the other is proverbially fickle. The effect of such teaching on christian science and similar fallacies can easily be foreseen, and requires no comment.

To do this is not a light task, and it is not to be accomplished in a day, but it is necessary to the welfare of the people, and to furnish a proper soil for the development of our profession. How can it best be done?

Is it not naturally the work of the local medical society to educate the people of the neighborhood to a proper appreciation of a profession that concerns them so intimately as does that of medicine, not only individually, but through newspapers and by other printed matter? If it be objected to this that we should be imitating the quacks, I can only answer that as long ago the churches decided that the devil should not have the best music, so now it is surely time that the monopoly by quacks of the best means of disseminating information should cease. "Truth is mighty and must prevail" in a fair field. But if the truth is bottled up and not allowed to get into the open, it is not surprising that falsehood scores a triumph.

Whether or not this public teaching be done, the duty of the physician to his patient is clear: to give him the best service in his power, and then charge him a reasonable fee for it. But to hide a real service under a needless prescription is basely to prostitute the profession, and to perpetuate the mental fog which envelopes the public with reference to the practice of medicine.

W. H. GRAVES.

The Book on Fractures by Lamb—An Explanation.

BENTON HARBOR, MICH., April 13, 1907.

To the Editor:—In THE JOURNAL of April 13, 1907, p. 1281, appears a letter from D. S. Lamb, Washington, D. C., relative to letters coming to him from various parts of the country requesting copies of "New Methods of Reducing Fractures and Dislocations." I think I may be able to explain where Mr. Lamb's letters came from, and why. A traveling contortionist gave an exhibition in this city about two years ago, and among other things, he told the physicians who were present that if they would write the curator of the National Medical Museum, giving name, they could get gratis a book on new methods of reducing fractures and dislocations, published by the United States government. So far as I know no reply was ever received to the letter written from here.

FRED. R. BELKNAP.

[Dr. V. M. Griswold, Fredonia, N. Y., sends similar information about the visit of this professional dislocator at Dunkirk, N. Y.—ED.]

Miscellany

Investigations Concerning Nostrums in Germany.—On several occasions THE JOURNAL has referred to the fact that the Pharmaceutical Institute of the University of Berlin is investigating the patented and other medicines exploited over there, in a way similar to the work being done by the Council on Pharmacy and Chemistry. In the *Apotheker Zeitung*, Dec. 22, 1906, are reported the recent investigations by J. Kochs of the Pharmaceutical Institute, which indicate that Isn,

which has been advertised as a ferrous saccharate, is in fact a mixture containing ferrous citrate with some ferric salt and sugar. In other words, it is not what it has been advertised to be. Kochs has also investigated grandira, a remedy for syphilis, advertised as containing 30 per cent. of calomel, but actually containing but 9 per cent. F. Zernik investigated aspirophen, found that it is not amidophenacetin, acetyl-salicylate, as claimed, but is a mixture of molecular proportions of free salicylic acid and monoacetylphenocoll. Zernik has also found that formurol is a mixture of about 37.5 per cent. of hexamethylenamin, with 62.5 per cent. of a mixture of neutral and acid sodium citrate. This preparation has been introduced as a remedy for gout and advertised as sodium-hexamethylenamin citrate. The above-named articles, so far as we know, are not yet advertised in this country.

The Doctor.

The following poem was written by James Whitcomb Riley in memoriam of Dr. W. B. Fletcher of Indianapolis, (who died April 25), and was published in the Indianapolis *Morning Star* on the day of the funeral.

THE DOCTOR.

"He took the suffering human race;
He read each wound—each weakness clear—
And struck his finger on the place
And said, 'Thou ailest here—and here.'"
—MATTHEW ARNOLD.

We may idealize the chief of men—
Idealize the humblest citizen—
Idealize the ruler in his chair—
The poor man, or the poorer millionaire;
Idealize the soldier—sailor—or
The simple man of peace—at war with war;—
The hero of the sword or fife-and-drum. . . .
Why not idealize the Doctor some?

The Doctor is, by principle, we know,
Opposed to sentiment; he veils all show
Of feeling, and is proudest when he hides
The sympathy which natively abides
Within the stoic precincts of a soul
Which owns strict duty as its first control,
And so must guard the ill, lest worse may come. . . .
Why not idealize the Doctor some?

He is the master of emotions—he
Is likewise certain of that mastery—
Or dare he face contagion in its ire,
Or scathing fever in its leaping fire?
He needs must smile upon the ghastly face
That yearns up tow'rd him in that warded place
Where even the saint-like Sisters' lips grow dumb.
Why not idealize the Doctor some?

He wisely hides his heart from you and me—
He hath grown tearless, of necessity—
He knows the sight is clearer, being blind;
He knows the cruel knife is very kind;
Ofttimes he must be pitiless, for thought
Of the remembered wife or child he sought
To save through kindness that was overcome.
Why not idealize the Doctor some?

Bear with him, prayerful, in his darkest doubt
Of how the mystery of death comes out;
He knows—he knows—aye, better yet than we,
That out of Time must dawn Eternity;
He knows his own compassion—what he would
Give in relief of all ills, if he could.
We wait alike one Master—He will come.
Do we idealize the Doctor some?
—JAMES WHITCOMB RILEY.

Home Treatment of Tuberculosis.—B. R. Shurly, Detroit, states, in the *Detroit Medical Journal*, that there are certain fundamental principles in the treatment of tuberculosis at home which must be omnipotent. The care by day and night of the infectious sputum requires the most constant attention to every detail. A newspaper cornucopia pinned to the mattress should receive the sputum rags or papers from the bedridden patient, and a destructible box or cup should be used by the ambulatory individual. If tuberculosis is to be limited the bacilli must be destroyed. Success of our methods requires the eternal vigilance of the attending physician. Among the intelligent the difficulties are appreciated, and the value of sunshine, fresh air and disinfectants are readily understood. Among the uneducated element and in dispensary practice, it is necessary to resort to printed instructions to which frequent attention is called. It is Shurly's plan to place a member of the family in charge of the patient and to make him responsible for the proper management of the five fundamental principles of treatment: First, the destruction of the infective material; second, fresh air and sunshine in abundance; third, rest; fourth, pure food and drink to the limit of digestive capacity; fifth, the use of medicine as directed by the physician and in no other manner. This supervision is supplemented by visits at intervals of a trained nurse, who is especially instructed in the hygiene and care of the consumptive. The ingenuity of the physician alone can direct the proper method of supplying the greatest amount of sunshine and fresh air to the patient. The problems of fresh air supply, diet and rest, especially during fever, must be worked out for the individual along the lines of the fundamental principles and carried out with the persistence of a general. The fight of the consumptive for life is an up-hill battle that requires masterful management and peculiar mental characteristics on the part of the physician. Treatment by suggestion is an extremely important factor in the cure of tuberculosis. Nature has endowed the patient with a great degree of hopefulness. This confidence in the power and judgment of the physician is a valuable factor in treatment. A buoyant spirit of pugnaciousness is an unfailing inspiration that frequently turns the tide of battle.

Treatment of Pseudarthrosis and Tardy Callus Formation by Injection of Blood.—More than two years have elapsed since Bier first called attention to the value of local injection of human venous blood as a means to hasten consolidation. V. Schmieden, assistant at his clinic, reviews the experiences to date with the method in a communication to the *Med. Klinik*, iii, 197, 1907. He remarks that the improvement in late years in the treatment of fractures has rendered pseudarthrosis very rare. This and delayed callus formation are observed only in persons who seem to be incapable of production of callus and in whom fractures seem unable to heal. In such patients the method of local injection of about 25 c.c. of their own or foreign human venous blood seems to have a remarkable stimulating effect. He advises the simple intervention in every case of delay in the production of callus, without waiting for the development of a pseudarthrosis, and relates the histories of a later series of 11 cases which show the prompt benefits derived. A syringe is used that exerts considerable pressure, the piston being moved by a thumb-screw and ratchet. In many instances the benefit was not apparent until after the fifth or sixth injection. He makes an injection every eight or ten days, and then waits to observe the results. Foreign human blood seems to be more efficient than the patient's own blood, and the effect is better when the blood is aspirated into the syringe and injected without further manipulation. A violent reaction ensues, with all the symptoms of acute inflammation, but it soon subsides, generally in the course of a day.

Nervous Phenomena in Children Due to Drinking Too Much Water.—Millon comments on the habit which some children acquire of drinking large amounts of fluids during and between meals and at night. He adds that even in adults this habit of drinking copiously is easily established and soon becomes imperious. A man who is very thirsty during the first hot days of summer and drinks constantly, condemns himself to keep on drinking copiously all through the season. No one notices how much a child drinks, and by the age of 10 or 12 the habit may become actual potomania, causing the ingestion of 5 or 6 quarts of water a day. This excess causes dilatation of the stomach, but there is no vomiting, no eructations nor cutaneous phenomena, the symptoms being generally exclusively of a nervous order. Headaches, restless sleep, bad dreams and even insomnia are frequently encountered in children who overdrink in this way. The child wakes with a frontal headache which may persist at times for days and weeks. The character suffers from the returning headaches and lack of normal sleep. The disturbances may be the result of irritation of the sympathetic from distension of the stomach by the large amounts of fluid ingested. The dilatation of the stomach is not permanent, and all disturbances are soon corrected when the physician and parents succeed in restricting the ingestion of fluids within normal bounds. Millon's article was published in the *Gaz. d. Mal. Infant*, viii, 113, 1906.

Cure of Chronic Albuminuria by Intercurrent Scarlet Fever.—Gillet reports the case of a child of about 8 left with intermittent, orthostatic albuminuria after an attack of acute primary nephritis with anasarca, fever and much albuminuria. After 4 years of this albuminuria, scarlet fever supervened, and the child was kept constantly in bed. On recovery from the scarlet fever the urine was re-examined 109 times in the course of the following five years, but no traces of albumin or other signs of nephritis were ever discovered. Le Gendre, he adds, has reported a similar case, and Siredey one in which the albuminuria vanished after malarial infection. Gillet suggests that these paradoxic cures of albuminuria after an intercurrent infection possibly point the way to a new mode of treatment. His article is published in the *Gaz. d. Mal. Infant*, viii, 33, 1906.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

Pennsylvania Osteopathy Bill Vetoed.

Governor Stuart of Pennsylvania has vetoed the Wickersham bill, which was passed by both houses of the legislature. This bill provided for the organization of a separate board of osteopathic examiners and also for the appointment of an osteopath on the state medical board. Governor Stuart's message should be carefully read, as it contains some eminently sensible and clear-cut statements regarding the recognition of osteopaths. He says:

"That the skilful practice of osteopathy has benefited the afflicted and alleviated human suffering in many instances is an established fact. It can, however, be practiced without violating the present medical practice act. No legislation, therefore, is necessary to permit osteopaths to practice their profession, but there is a broad and clearly defined distinction between practicing medicine and surgery and practicing osteopathy. The state is not concerned with any controversy between the different schools or sects and those who practice the art of healing, but it is interested in protecting the public from incompetent practitioners of every sort. Whether classifying osteopaths, who are not physicians or surgeons, with physicians and surgeons, in legislation originally designed to be applicable only to physicians and surgeons would afford any protection to the public is considered doubtful."

The governor concludes by stating that while the regulation of osteopathy may be desirable it should be provided for by legislation other than amendments to a law intended to apply only to the regulation of the practice of medicine and surgery.

Medical Legislation.

An important amendment to the medical practice act has been adopted in Delaware. The principal feature is the adoption of a definition of medical practice, which includes Eddyism, mental healing, osteopathy and all the latter-day fads. In Texas, after a prolonged struggle, the one board bill has been adopted and signed by the governor. Abstracts of these two laws are presented herewith:

DELAWARE.

The legislature has passed an act amending the medical practice act adopted in 1895 and amended in 1899. The present amendment adds a provision that applicants who graduated prior to July 1, 1901, and who have been in continuous practice for at least five years since graduation may be admitted to examination on evidence of having completed three courses of medical lectures in different calendar years and of a competent academic education according to the requirements of that time. Applicants who graduated prior to July 1, 1896, and who have been in continuous and reputable practice for at least ten years may be admitted to examination on furnishing evidence of having attended two courses of medical lectures in different calendar years and of a competent academic education according to the requirements of the time of graduation. All other applicants must have pursued the study of medicine for at least four years and must present a diploma from some reputable literary or scientific college or a certificate from the faculty of Delaware College saying that the applicant is qualified to enter the freshman class of the Latin scientific course of the college.

Section 14 is amended by adding a provision for a temporary license of not less than two weeks nor more than four months, which may be granted to a resident and legally qualified physician of another state who desires to take charge of the practice of a legally qualified resident physician of Delaware during the latter's temporary illness or absence from the state.

In addition, two new sections are added. Section 20 defines the practice of medicine to be the opening of an office for the purpose of practicing medicine and surgery or the announcing to the public or to any individual in any way of a desire, willingness or readiness to treat the sick and afflicted in any county in the state of Delaware, or to investigate or diagnose or offer to diagnose any physical or mental ailment or disease of any person or to give surgical assistance or to suggest, recommend, prescribe or direct for the use of any person any drug, medicine, appliance or other agency, whether material or not material, for the cure, relief or palliation of any ailment or disease of the mind or body, or for the cure or relief of any wound, fracture, bodily injury or deformity, or the receiving, either directly or indirectly, of any money, gift or other form of compensation for such services, or the use in connection with one's name of the words or letters "Dr.," "Doctor," "Professor," "M.D.," "M.B.," or "Healer," or any other designation which may imply or designate that the individual is a practitioner of medicine or surgery.

The usual exemptions are added regarding the administration of household or family remedies, dentists or dentistry surgeons, surgeons of government services, or mechanical fitting of glasses, druggists practicing pharmacy, the treatment of corns or bunions, manicuring or massage.

Section 21 provides that any practitioner of osteopathy now engaged in the practice in the State of Delaware, who holds a diploma from a legally chartered school of osteopathy and who has attended at least four terms of instruction of not less than five months each, is exempt from the provisions of the act, but that all other persons shall be examined by the medical council with the assistance of a reputable practitioner of osteopathy.

TEXAS.

The state legislature has passed the one board bill, and it has been signed by the governor, to become effective on July 1. This law provides for the establishment of a board of medical examiners to consist of eleven men, legal and active practitioners of medicine in the state who have practiced medicine under a diploma from a legal and reputable college of medicine for at least three years. No school shall have a majority representation. The board is to be appointed by the governor within ninety days after the act becomes effective and biennially thereafter within ninety days after his inauguration, the term of office to be two years. No member of the board shall be a stockholder, trustee or member of the faculty of any medical school. Certificates issued by the board are to be registered in the district clerk's office of the county in which the physician resides. In case of removal to another county, the individual must register in the office of the county clerk in his new location. District clerks are required to keep a record of all certificates recorded and to furnish a correct list of all the physicians registered in the county on the first day of January of each year. All local practitioners of medicine in the state are required to present to the board of medical examiners evidence to establish their right to practice medicine in the state. All other applicants must pass an examination before the board. Reputable medical schools are defined as those whose restrictions, requirements and courses of instruction are as high as those adopted by the better class of medical schools of the United States, whose courses of instruction comprise not less than four terms of five months each. Examinations shall be conducted on anat-

omy, physiology, chemistry, histology, pathology, bacteriology, physical diagnosis, surgery, obstetrics, gynecology, hygiene and medical jurisprudence. Dentists, nurses, masseurs, medical officers of government service and physicians of other states called in consultation are exempt. The board is authorized to refuse examination or a certificate for any of the following causes: Presentation of any license, certificate or diploma illegally or fraudulently obtained; fraud or deception in passing examination; conviction of a crime of the grade of a felony or one which involves moral turpitude, procuring, aiding or abetting a criminal abortion; gross unprofessional conduct of a character likely to deceive or defraud the public; habits of intemperance or drug addiction calculated to endanger the lives of patients. The courts are authorized to revoke any license for any of the above reasons. The practice of medicine is defined to be professing to be a physician or surgeon, treating or offering to treat any disease or disorder, mental or physical deformity or injury by any system of medicine, treating or offering to treat any disease or disorder and charging therefor directly or indirectly.

The new law is a great improvement over the old one, in that it provides for a general reregistration of all physicians, a measure greatly needed, owing to the confusion resulting from four successive practice acts in the last twenty years. It also substitutes a single board and a single standard for the triple board system formerly in vogue. This is in line with the present tendency to substitute single, non-sectarian boards for multiple sectarian systems. The provision for an examination in the essential and fundamental subjects to the exclusion of therapeutics is also wise. The sooner the public realizes that a physician's preparation and training are of more importance than the "school" to which he may belong, the better for the public and for the profession as well.

A Timely Criticism.

In the *Journal of the Medical Society of New Jersey* for April appears an article by Dr. Luther Halsey of Williamstown, of more than ordinary interest. One paragraph, in particular, contains both a criticism and a suggestion which is most pertinent at the present time. Speaking of the attitude of the medical profession toward state legislation in the past, Dr. Halsey says:

> Our efforts, however, have been, to a great extent, poorly generaled, disconcerted and spasmodic in character, with no definite plan for action common to any two states and frequently, even in the same state, we find each succeeding legislative committee totally disregarding the work and plans of its predecessor. What the profession needs and what it must have, before there can be uniform ideas regarding medical legislation and concerted, definite plans of action, is a deliberative meeting, at which to discuss and agree on the proper principles underlying the several essential features of a medical law. Such a body should be made up of at least one representative of each state and territory and should hold a session of several days. It takes time and deliberate thought to accomplish anything along these lines, and the sooner the profession realizes the necessity of tackling these problems in the proper manner, the sooner we may expect success to crown our efforts.

Dr. Halsey has described a condition which must be apparent to all who have been working or thinking along these lines. Legislatures have been in session this winter in 36 states. In 26 of these, bills have been introduced which in some manner affect the legal provisions of medical practice. In states which have three examining boards, bills providing for a single board have been introduced. In states which have but one board or in which the board of health is the examining body, efforts are being made to secure the passage of a law establishing more boards. In some states the medical profession is advocating a single board. In other states it is advocating more than one. The experience of physicians who have been successful in obtaining desirable legislation in one state should be utilized by those working for similar legislation in other states. Arguments and methods which have been successfully used to defeat pernicious legislation in one state should be utilized for the same purpose in another. The experience of the profession in one state should be made available in others. The osteopaths are systematically working to secure the adoption of uniform laws in all states. Their success so far is due to the fact that the work has been directed from a central bureau and that all of their experience and influence has been focused on a single state at a time. The organized profession ought to show at least the same amount of shrewdness and sagacity in securing desirable legislation for the good of the public that the Proprietary Association, osteopaths and other private interests show in obtaining legislation for personal reasons.

Insurance Resolutions.

The following societies have adopted resolutions on the insurance question since the last list was published in THE JOURNAL:

Fort Wayne (Ind.) Medical Society.
Norfolk South District (Mass.) Medical Society.
Pima County (Ariz.) Medical Society.
Somerset County (Md.) Medical Society.
Medical Society of the City and County of Denver (Colo.).
Fayette County (Tex.) Medical Society.
Kossuth County (Iowa) Medical Society.
Franklin County (Pa.) Medical Society.
Adams County (Miss.) Medical Society.
Washington County (Wis.) Medical Society.
Columbia County (Wis.) Medical Society.
Fairfield County (S. C.) Medical Society.
Scott County (Ind.) Medical Society.
Northwest District (N. D.) Medical Society.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers for the week ending May 4, 1907:

Wilson, James S., asst.-surgeon, granted twenty-five days' leave of absence.

Keller, William L., asst.-surgeon, granted three months' leave of absence with permission to go beyond the sea.

Howard, Deane C., surgeon, promoted to major and surgeon, U. S. Army, to rank as such from April 24, 1907.

Whitmore, Eugene R., asst.-surgeon, granted ten days' leave of absence to take effect on being relieved from duty at Fort Jay, N. Y.

Banister, John M., deputy surgeon general; Gandy, Charles M., professor of military hygiene, and Mason, Charles F., surgeon, appointed members of a board of medical officers to meet at West Point, N. Y., on May 20, 1907, for the purpose of making the physical examination of cadets required by Par. 25 of the General Regulations, as amended by G. O. 74, April 13, 1906, War Department.

Brechemin, Louis, deputy surgeon general, granted three months' leave of absence with permission to go beyond the sea.

Wyeth, M. C., surgeon, ordered to proceed to Hot Springs, Ark., and report in person to the commanding officer, Army and Navy General Hospital, at that place for observation and treatment.

Shaw, Herbert G., asst.-surgeon, relieved from duty at Army General Hospital, Presidio, San Francisco, and ordered to Vancouver Barracks, Wash., for duty.

Gray, William W., deputy surgeon general, granted ten days' leave of absence.

Robbins, Chandler P., asst.-surgeon, granted fourteen days' leave of absence.

Hughes, Leonard S., contract surgeon, relieved from duty at the depot of recruits and casuals, Angel Island, Cal., and ordered to Fort McDowell, Cal., for duty.

Koyle, Fred T., contract surgeon, relieved from duty at Fort McDowell, Cal., and ordered to the Presidio of San Francisco, for duty.

Whitney, Walter, contract surgeon, ordered from Fort Preble, Me., to Fort Wadsworth, N. Y., for temporary duty.

Pinquard, Joseph, contract surgeon, granted sick leave of absence for two months.

Kelly, John P., contract surgeon, ordered to accompany Troop F, Fourteenth Cavalry, to duty in the Sequoia and General Grant National Parks, Cal.

Hereford, John R., contract surgeon, ordered from Fort Dade, Fla., to Fort Fremont, S. C., for temporary duty.

Slater, Ernest F., contract surgeon, returned to duty at Fort Banks, Mass., from leave of absence.

Mount, James R., contract surgeon, ordered to duty with field artillery from Presidio of San Francisco, Cal., on target practice.

Richardson, W. H., contract surgeon, left Fort Sheridan, Ill., with troops for San Francisco.

Woolley, Herbert C., contract surgeon, ordered to Fort Liscum, Alaska, for duty on Delta-Gakona Cut-off, U. S. Military Telegraph Line, and then to duty at Fort Gibbon, Alaska.

Stephenson, Andrew V., contract surgeon, ordered to Presidio of San Francisco for duty.

Bell, Richard P., contract surgeon, relieved from duty on the transport *Kilpatrick* and ordered to duty at Fort Levett, Me.

Wren, Raphael J., contract surgeon, relieved from duty at Fort Totten, N. Y., and ordered to Fort Slocum, N. Y., for duty.

O'Day, Sylvester F., contract surgeon, ordered to Fort Totten, N. Y., for duty.

Wing, Franklin F., dental surgeon, left Fort D. A. Russell, Wyo., for duty at Fort Meade, S. Dak.

Wolven, F. Homer, dental surgeon, relieved from duty at Fort Hamilton, N. Y., and ordered to Fort Niagara, N. Y., for duty.

Millikin, John D., dental surgeon, granted sick leave of absence for two months.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending May 4, 1907:

A. H. Allen, asst.-surgeon, to duty at Lajas, Cuba.

C. H. DeLancy, passed asst.-surgeon, when discharged from treatment at the Naval Medical School Hospital, Washington, D. C., ordered to Navy Yard, Washington, D. C.

T. N. Phillips, pharmacist, detached from the Naval Hospital, New Fort Lyon, Colo., and ordered to the Naval Medical School Hospital, Washington, D. C., for treatment.

Public Health and Marine-Hospital Service.

List of changes of stations and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended May 1, 1907:

Carrington, P. M., surgeon, granted leave of absence for three days from April 29, 1907, under paragraph 189 of the Service Regulations.

Mathewson, H. S., P. A. surgeon, granted leave of absence for fifteen days from April 27, 1907.

Grubbs, S. B., P. A. surgeon, granted one day's leave of absence, May 6, 1907.

Holt, John M., P. A. surgeon, granted leave of absence for two months from June 20, 1907.

Ward, W. K., asst.-surgeon, leave of absence granted for one month on account of sickness, from April 1, 1907, amended to read for twenty-two days only.

Stiles, Charles W., Chief of Division of Zoology, granted leave of absence for five days in April, 1907.

Kastle, J. H., Chief of the Division of Chemistry, granted leave of absence for nine days in April, 1907.

Schwartz, Louis, acting assistant surgeon, granted leave of absence for seven days from May 2, 1907.

Straw, E. E., acting assistant surgeon, granted leave of absence for twenty days from April 15, 1907.

Ryder, L. W., pharmacist, granted leave of absence for seven days from April 27, 1907.

Watters, M. H., pharmacist, leave of absence granted from April 1, 1907, for thirty days amended to read nineteen days from April 4, 1907.

BOARD CONVENED.

A board of medical officers was to meet at Philadelphia April 30, 1907, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: Surgeon J. M. Gassaway, chairman; Passed Assistant Surgeon T. Clark, Recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 3, 1907:

SMALLPOX—UNITED STATES.

California: San Francisco, April 13-20, 1 case.
Illinois: Belleville, April 13-20, 1 case; Chicago, April 20-27, 1 case.
Kentucky: Louisville, April 18-25, 2 cases.
Massachusetts: Haverhill, March 9-16, 1 case.
Michigan: Detroit, March 20-27, 8 cases.
New Jersey: Hoboken, April 18-25, 1 case.
Ohio: Cincinnati, April 19-26, 1 case.
Texas: Houston, April 13-20, 10 cases.
Washington: Aberdeen, April 17, 4 cases; Spokane, April 13-20, 10 cases; Tacoma, April 13-20, 3 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, March 9-16, 1 case.

SMALLPOX—FOREIGN.

Africa: Algiers, March 1-31, 8 deaths.
Austria: Trieste, March 30-April 6, 2 cases, 1 death.
Brazil: Para, March 30-April 6, 5 cases, 3 deaths.
Canada: Pictou County, April 20, present; Vancouver, April 13-20, 2 cases; Winnipeg, April 13-20, 2 cases.
Chile: Coquimbo, March 30, 6 cases, 3 deaths.
China: Hankow, March 11-25, 3 cases; Shanghai, March 9-23, 24 deaths; Tiensin, March 16-23, 2 cases.
Ecuador: Guayaquil, March 30-April 6, 3 deaths.
Egypt: Cairo, March 31-April 8, 5 cases, 1 death.
France: Nice, March 1-31, 40 cases, 6 deaths; Paris, April 6-13, 16 cases.
Germany: Bremen, March 16-April 6, 7 cases.
India: Calcutta, March 16-23, 86 deaths; Madras, March 23-29, 1 death.
Italy: Turin, March 31-April 7, 2 cases, 1 death.
Madeira: Funchal, April 7-14, 30 cases, 14 deaths.
Mexico: Aguas Calientes, April 13-20, 18 cases; Monterey, April 14-21, 1 death; Tuxpam, April 16-23, 1 death; Vera Cruz, April 13-20, 2 cases.
Portugal: Lisbon, April 6-13, 11 cases.
Russia: Moscow, March 30-April 6, 6 cases, 1 death; Odessa, March 31-April 6, 22 cases, 2 deaths; Riga, March 30-April 13, 10 cases; St. Petersburg, March 23-April 6, 2 cases; Warsaw, March 23-30, 5 deaths.
Spain: Almeria, March 1-30, 13 deaths; Valencia, April 7-14, 4 cases.
Turkey in Asia: Bagdad, March 9-16, present; Damascus, March 16-April 6, present.

YELLOW FEVER.

Brazil: Manao, March 23-April 6, 5 deaths; Para, March 30-April 6, 5 cases, 4 deaths.
Ecuador: Guayaquil, March 30-April 6, 5 deaths.
Java: Batavia, March 16-23, 2 cases.
West Indies: Bridgetown, Barbadoes, April 13-20, 1 case (imported); Port of Spain, Feb. 9-April 13, 8 cases, 4 deaths.

CHOLERA.

India: Calcutta, March 16-23, 49 deaths.

PLAGUE.

Australia: Brisbane, Feb. 8-March 9, 2 cases, 1 death; Ipswich, Feb. 8-16, 1 case; Kempsey, Feb. 8-16, 1 death; Sydney, Feb. 8-March 9, 14 cases, 1 death.
Brazil: Para, March 30-April 6, 6 cases, 3 deaths.
Chile: Antofagasta, March 30, 16 cases, 5 deaths; Iquique, March 30, present; Santiago, March 14, present; Talcahuana, March 14, present.
India: General, March 16-23, 62,155 cases, 53,004 deaths; Calcutta, March 16-23, 94 deaths.

Queries and Minor Notes

"COFFEE ANEMIA" AND DECAYED TEETH AND PNEUMONIA.

WASHINGTON, D. C., April 29, 1907.

To the Editor:—In the *Review of Reviews* for April it is stated (p. 435) that a child in a New York public school was found by a medical inspector to be anemic from the excessive use of coffee. 1. What authority is there for the opinion that this beverage could cause anemia and how much would be required to produce the effect? 2. Since the pneumococcus is present in the mouth, why is it not a reasonable supposition that pneumonia may be caused by the pneumococcus entering the lymphatics through decayed teeth? W.

ANSWER.—1. Authorities on pharmacology and toxicology present no facts to justify the opinion that anemia can be the result of a specific action of coffee. By deranging digestion, favoring intestinal putrefaction, or taking the place of a considerable amount of nutritive food, an excessive use of coffee may contribute to the production of an anemic state.

2. It is generally believed that pneumonia is usually a primary localization of the bacteria in the lung with secondary bacteriemia. It is probable that in some cases the bacteria may gain access to the blood through the lymphatics and settle in the lungs as a secondary localization from the blood. As invasion of the lymphatics through the teeth would be slow, it seems improbable that a general bacteriemia could arise in this way. Virulent pneumococci are pyogenic and would be likely to give rise to purulent lymphadenitis. The suggestion of our correspondent, however, deserves the attention of pathologists.

THE USE OF DENATURED ALCOHOL IN MEDICINE.

MT. HOPE, WIS., May 1, 1907.

To the Editor:—Will you state through your columns the chemical and physiologic properties of denatured alcohol, and also whether it is suitable for the making of tinctures and for other medicinal purposes? D. C. MILLER, M.D.

ANSWER.—For the purpose of denaturing alcohol the law authorizes the addition of various specified substances, the intent being to render the liquid unpalatable and undrinkable. Among these substances are gasoline and methyl alcohol. It is evident that the chemical and physiologic properties of the mixture would vary with the ingredient added. As the ingredients used are generally poisonous, and in some cases more so than ethyl alcohol, the use of denatured alcohol for making tinctures would be not only illegal, but dangerous.

WANTS REPORT OF MIKULICZ'S CLINIC.

DR. C. E. PURCELL, Paducah, Ky., asks for an English translation of the report of Mikulicz's clinic, which was abstracted in THE JOURNAL, March 23, 1907, page 1070, paragraph 66. This copy of the *Mitteilungen a. d. Grenzgebieten der Med. u. Chir.*, Jena, costs $10.00 and the article referred to occupies 64 pages, so it will be expensive for Dr. Purcell to pay for having the translation made. Perhaps some of our readers can refer him to a translation.

Association News

ATLANTIC CITY SESSION.

Special Tickets May Be Purchased May 30 in Central Territory.

Last week's issue of THE JOURNAL was the Atlantic City Number, giving the programs of the sections, railroad rates, lists of hotels, meeting places and all other obtainable information concerning the approaching fifty-eighth annual session of the American Medical Association, to be held at Atlantic City, N. J., June 4 to 7, 1907.

The dates on which tickets are good for the going trip from Central Passenger Association territory has been enlarged by the addition of Friday, May 30, so that tickets are now sold May 30 to June 3. In New England territory tickets are sold May 31 to June 4. As stated last week, the rate is one fare plus $1 for the round trip. Return may be made from June 4 to 10, or by deposit of ticket, departure may be delayed till June 18. Similar tickets are sold from transcontinental points May 25 to 27 and are good for 90 days. There are other tickets, sold May 20 and 21, from California to the eastern gateways of the transcontinental territory at one fare for the round trip, good for 90 days. Details have been furnished to all ticket agents, who will give further particulars.

A Proposed Exhibition of Official and Open Formula Preparations.

The Philadelphia Branch of the American Pharmaceutical Association has arranged to hold an exhibition of official and open formula preparations in the Exhibit Hall at the coming session of the American Medical Association at Atlantic City. This exhibition is intended to illustrate the resources and the possibilities of official remedies and to show the kind of work and the nature of the preparations that physicians can obtain from pharmacists. The art as well as the science of pharmacy, largely perhaps through our own lack of interest in how we were being served, has been much neglected by far the greater majority of what have become to be known as retail druggists, who, to enlarge on their perhaps meager profits, have helped to develop the "patent medicine" business.

NEW MEMBERS.

List of new members of the American Medical Association for the month of April, 1907:

ALABAMA.

Black, R. E., Tuscaloosa.
Cocke, N. P., Birmingham.
Elrod, W. A., Albertville.
Gaines, V. P., Mobile.
Griffin, R. J., Moundsville.
Hanna, R. C., Marion.
Juat, F. J., Florala.
Matthews, E. A., Clanton.
Ward, J. H., Tuscaloosa.
Williams, W. C., Shelby.

ARIZONA.

Ketcherside, E. B., Yinna.
Mahoney, O. L., Phoenix.
Mahoney, Virginia, Phoenix.
Richards, L. H., Gila Bend.
Richardson, G. B., Paradise.
Wright, F. T., Douglas.

ARKANSAS.

Joyce, M. J. H., Leola.
Mahan, J. M., Bearden.
Stout, T. J., Brinkley.
Vance, J. O., New Edinburg.
Woods, T. J., Evening Shade.

CALIFORNIA.

Bissell, N. C., Marysville.
Dozier, W. E., Chico.
Hogan, J. J., Vallejo.
Jacobs, L. Clive, San Francisco.
Jones, W. F., San Rafael.
Long, S. F., San Francisco.
Pond, C. P., Groveland.
Rethers, Theodore, San Francisco.
Reynolds, H. B., San Francisco.
Reynolds, R. G., Upper Lake.
Seawell, J. W., Healdsburg.
Seymour, Eleanor C., Los Angeles.
Van Voorhees, G. T., Tehachapi.
Wheeler, I. A., Healdsburg.
Yates, H. N., Pacific Grove.

COLORADO.

Lazell, E. W., Denver.
Merrill, Lilburn, Denver.
Onstine, W. A., Weston.

CONNECTICUT.

Hammond, S. M., New Haven.
Hogan, W. J., Torrington.
Stanton, J. G., New London.
Thompson, W. N., Hartford.

DISTRICT OF COLUMBIA.

Phillips, W. F. R., Washington.
Reichelderfer, L. H., Washington.
Thompson, M. F., Washington.
Wall, J. S., Washington.

FLORIDA.

Livingston, J. A., Jacksonville.

GEORGIA.

Allen, H. D., Milledgeville.
Bright, Frank, Dublin.
Hall, J. R., Carnesville P. O.
Hilsman, A. H., Albany.
Jackson, Max, Macon.
Le Conte, J. N., Atlanta.
Maloy, W. C., Rhine.
Rouglin, L. C., Atlanta.
Simmons, A. B., Savannah.
Tarver, H. R., Statesboro.
Thomas, J. M., Griffin.
Westbrook, R. J., Commerce.

IDAHO.

Mason, T. R., Wardner.

ILLINOIS.

Armstrong, J. B., Chicago.
Auld, F. P., Shelbyville.
Bain, P. E., Pleasant Plains.
Beck, F. P., Oakland.
Beveridge, J. M., Oregon.
Bourne, N. L., Decatur.
Burdick, G. G., Rogers Park.
Camp, C. D., Chadwick.
Crawford, L. P., Earlville.
Doyle, T. F., Chicago.
Foster, T. R., Kankakee.
Hendricks, H. P., Chicago.
Hoffman, G. H., Kewanee.
Johnson, Augusta E., Chicago.
Kaley, C. M., Newton.
Kohlenbach, Stephen, Columbia.
Kinnaman, G. C., Chicago.
Lescher, L. J., Mt. Carmel.
Mikkelsen, Agnes, Chicago.
Moss, E. Bruce, Chicago.
Murray, A. N., Chicago.
Nice, D. D., Bowen.
Peterson, C. R., Chicago.
Pickerill, J. T., Chicago.
Rohn, W. C., Chicago.
Roth, H. H., Murphysboro.
Salamson, M. J., Chicago.
Schineck, S. W., Mt. Carmel.
Simpson, E. Grant, Napierville.
Slater, Catherine B., Aurora.
Stubblefield, F. H., Jacksonville.
Svebakken, O. O., Chicago.
Taylor, R. C., Lilylake.
Wilson, T. H., Chicago.

INDIANA.

Arburn, Charles, Wadesville.
Breaks, L. Z., Terre Haute.
Fleming, C. F., Wabash.
Kern, Aaron, Wabash.
Osborne, H. S., Indianapolis.
Rea, C. G., Muncie.
Shanklin, R. C., So. Bend.
Townsend, R. C., Osgood.
Wollery, Perry, Heltonville.

INDIAN TERRITORY.

Bagby, Louis, Vinita.
Callaway, J. R., Pauls Valley.
Frost, C. E., Duncan.
Lindsey, J. K., Elmore.
Lindsey, N. H., Pauls Valley.
Nesbitt, P. P., Muskogee.
Ramsay, W. G., So. McAllister.
Shuler, J. L., Durant.

IOWA.

Browning, Ell, West Branch.
Case, T. J., Unionville.
Chambers, J. D., Davenport.
Conaway, A. C., Marshalltown.
Dittmer, M. E., Colesberg.
Doidge, R. E., Perry.
Geeseka, O. A., Mt. Pleasant.
Greenleaf, W. S., Massena.
Hanson, E. M., Keokuk.
Harmon, R., Onawa.
Herrick, W. J., Melrose.
Jastram, A. H., Remsen.
Jones, M. M., Ames.
Langenhorst, F. J., Ashton.
Lakin, A. M., Yale.
Lezotte, G. D., Muscatine.
Lillie, P. A., Akron.
Long, E. C., Williamsburg.
Lowry, J. D., Ft. Dodge.
Meis, E. W., Sioux City.
Nelson, A. E., Centerville.
Pace, A. A., Elberon.
Peacock, A. L., Grimes.
Robb, E. H., Newton.
Roost, F. H., Sioux City.
Sloan, A. N., Sioux City.
Wall, W. R., Council Bluffs.
Weston, R. A., Little Sioux.

KANSAS.

Barker, J. W., Chanute.
Brussler, A. H., Nickerson.
Button, E. C., Great Bend.
Coldren, E. V., Topeka.
Crosier, M. L., Lansing.
Daniels, M. L., Pawnee Rock.
Dierker, O. F., Sylvan Grove.
Finn, B. F., Cedar Vale.
Foltz, J. E., Hutchinson.
Forbes, D. M., Selden.
Graf, J. E., Scottsville.
Greening, W. P., Valley Center.
Hall, George, Baileyville.
Halm, C. J., La Harpe.
Ham, W. E., Beattie.
Hazel, J. A., Freeport.
Heylmun, W. R., Iola.
Higginbotham, T. L., Liberal.
Janes, G. K., Williamsburg.
Lash, A. R., Ellinwood.
Lilly, C. A., Atchison.
Longenecker, O. M., Rosedale.
McCord, F. E., Milford.
McDonald, W. S., Ft. Scott.
McNaughton, W. L., Elgin.
Meyer, A. A., Alma.
Neighbors, C. A., Emporia.
Richmond, Thomas, Kansas City.
Schwartz, C. W., Topeka.
Scoles, J. P., Galena.
Silverthorne, C. R., McFarland.
Simmons, C. L., Westphalia.
Sloan, J. R., Stanley.
Thacher, M. S., Turon.
Troutman, John, Kansas City.

KENTUCKY.

Bleiweiss, M. H., Louisville.
Combs, W. G., Winchester.
Coomer, R. C., Speedwell.
Coomes, M. F., Louisville.
Crabtree, R. F., Gamaliel.
Doherty, W. B., Louisville.
Edwards, Fidelia, Edmonton.
Escue, B. E., Sharongrove.
Graveley, W. E., Brodhead.
Green, W. O., Louisville.
Hammond, L. F., Dunnville.
Hendren, G. M., Buckeye.
Koger, R. G., Powersburg.
Lester, C. W., Guthrie.
Menefee, C. A., Napoleon.
Paine, J. R., Pembroke.
Parsons, A. L., Louisville.
Shehan, J. N., Maud.
Simpson, V. E., Louisville.
Smith, B. R., Clay City.
Taylor, H. F., Mintonville.
Warren, Bradford, Bee Lick.
Windell, J. T., Louisville.
Witherspoon, W. H., Harrodsburg.
Yenowine, G. H., Woddy.

LOUISIANA.

Betts, W. R., New Orleans.
Bodenheimer, J. M., Shreveport.
Brock, J. M., Mt. Herman.
Franklin, W. T., Orange.
Harris, C. M., Shreveport.
Jones, W. J., Franklinton.
Le Beuf, L. G., New Orleans.
Lerch, Otto, New Orleans.
Lewis, O. B., Leesville.
Newman, A. J., Hillsdale.
Nichols, J. W., De Ridder.
Perkins, W. P., Leesville.
Pierce, W. B., Lake Providence.
Price, J. A., Lockport.
Sholars, L. A., Opelousas.
Selby, J. A., Shreveport.
Tebo, L. C., Reserve.

MAINE.

Burker, L. G., Waterville.
Burrage, T. J., Portland.
Iiles, B. G., Jonesport.
Philoon, C. E., Auburn.
Walker, A. G., Houlton.

MARYLAND.

Arthur, H. H., Baltimore.
Baldwin, Silas, Baltimore.
Bare, S. L., Westminster.
Cannon, T. H., Baltimore.
Cassidy, H. F., Baltimore.
Cathell, D. W., Baltimore.
Dawson, P. M., Baltimore.
Franklin, A. L., Cumberland.
Hughes, S. B., Baltimore.
Jones, G. W., Laurel.
Kerr, Eugene, Baltimore.
Maisch, A. C., Hagerstown.
Riggs, G. H., Ijamsville.
Spencer, Ernest, Bel Alton.

MASSACHUSETTS.

Campbell, M. P., Provincetown.
Cliff, L. A., Boston.
Courtney, J. W., Boston.
Dehn, E. W., New Bedford.
Dow, J. A., Cambridge.
Fahey, J. C., Northampton.
Finegan, D. J., Gloucester.
Fitzgerald, J. J., Haverhill.
Galligan, E. J., Taunton.
Griffin, T. M., Pittsfield.
Harriman, Cora E., Framingham.
Heath, J. W., Wakefield.
Laurence, J. H., Brockton.
Martin, H. C., Springfield.
Murphy, F. P., Lowell.
O'Connor, J. C., Salem.
O'Keefe, D. T., Boston.
Roy, J. N., Webster.
Sanborn, J. W., Roxbury.
Slack, F. H., Boston.
Tyler, W. M., Lexington.
White, C. A., Whatley.

MICHIGAN.

Burwell, A. G., Byron Center.
Clark, J. E., Detroit.
Connor, G. L., Detroit.
Gibson, J. C., New Haven.
Hagerty, H. A., Detroit.
Hardy, P. B., Tecumseh.
Ives, A. W., Detroit.
Levin, Simon, Lake Linden.
Lunn, Wm. B., Marquette.
Martin, E. G., Detroit.
McGarvah, J. A., Detroit.
McGillicuddy, James, Shepardsville.
Mooney, E. W., Detroit.
Moore, G. E., Ironwood.
Paradis, R. A., Bessemer.
Parker, I. E., Dryden.
Pray, G. R., Jackson.
Pullen, C. D., Mt. Pleasant.
Rainie, Frank, Manistique.
Roberts, M. D., Hancock.
Scott, A. H., St. Joseph.
Sprague, W. B., Palmyra.
Thomas, O. J., West Branch.
Wilkinson, C. A., Kendall.
Young, R. K., Detroit.
Zimmer, L. L., Detroit.

MINNESOTA.

Arey, H. C., Excelsior.
Clark, C. N., St. Charles.
Davis, F. W., Kasson.
Durgin, F. L., Winnebago.
Long, Jesse, Minneapolis.
Mallory, J. N., Emily.
Meckstroth, C. W., Brandon.
McMasters, J. M., Sauk Center.
Mellby, O. F., Argyle.
Moore, J. T., Minneapolis.
Neumann, W. H., Lewiston.
O'Brien, H. J., St. Paul.
Olsen, S. H., Melaca.
Orton, H. N., Minneapolis.
Power, F. W., Barrett.
Ransom, M. L., Hancock.
Savage, F. J., St. Paul.
Seashore, D. E., West Duluth.
Storch, C. M., Grand Rapids.
Williams, U. G., Minneapolis.
Woods, E. A., Clear Lake.

MISSISSIPPI.

Bucey, J. I., Longtown.
Curry, R. S., Columbus.
Dampeer, J. M., Crystal Springs.
Goodman, R. L., New Albany.
Hamilton, H. L., Money.
Heald, R. J., Healds.
Kittrell, J. R., Laurel.
Mayes, H. N., New Albany.
McCarty, J. F., McHenry.
Miller, H. R., Lamont.
Newman, A. J., Bowling Green.
Scales, W. F., Macon.
Sharp, J. Sidney, Grenada.
Smith, J. D., Sandersville.

MISSOURI

Albers, E. A., Smithton.
Bailey, W. S., Leeper.
Baldwin, Paul, Kennett.
Batdorf, F. P., Farmersville.
Bauman, L. C., St. Joseph.
Beers, E. G., Springfield.
Bell, J. M., St. Joseph.
Billeter, W. J., Bynumville.
Brady, J. M., St. Louis.
Burney, W. S., Miller.
Clark, H. R., Pierce City.
Crockett, J. A., Stanberry.
Culp, J. C., Thayer.
Cummings, C. C., Joplin.
Cuppaidge, G. O., Moberly.
Crane, T. V. B., Springfield.
Davis, J. D., Louisiana.
Davis, R. H., St. Louis.
Dorsett, E. L., St. Louis.
Douglass, W. H., Columbia.
Gaines, E. F., Bates City.
Geeslin, P. A., Luray.
Gilmore, E. E., Adrian.
Goodwin, E. J., St. Louis.
Hutton, W. S., Fernfelt.
Justice, W. F., Lancaster.
Kirkpatrick, H. E., Dalton.

Krimminger, C. E., Independence.
Langan, W. J., St. Louis.
Loer, T. R., Billings.
Lyle, H. M., Kansas City.
Major, H. S., Harden.
McClure, G. W., Carterville.
McCoy, J. H., St. Joseph.
McGaugh, E. T., Richmond.
Mitchell, D. L., Cassville.
Mollison, J. A., Bolckow.
Mook, W. H., St. Louis.
Morris, W. C., Kansas City.
Myers, W. T., Aldrich.
Newman, L. E., St. Louis.
Painter, J. M., Mt. Vernon.
Pare, E. Y., Leeton.
Pittman, W. T., Spickard.
Popejoy, H. R., High Point.
Reynolds, J. B., St. Joseph.
Rienhoff, Wm., Springfield.
Robertson, J. A., Ozark.
Robertson, W. A., Allendale.
Semple, N. M., St. Louis.
Sherer, J. W., Kansas City.
Studer, Greenfield, St. Louis.
Smith, C. W., Keota.
Temple, C. H., Rockford.
Toothaker, B. W., St. Joseph.
Walker, G. W., Cape Girardeau.
Weems, D. L., Neosho.
Williamson, Llewellyn, St. Louis.
Wingo, T. B., Dexter.
Yeagle, R. P., Pleasant Hill.

MONTANA.

Atkinson, J. L., Poplar.
Brewer, A. D., Belgrade.
Hathaway, R. E., Glendive.
Leard, S. E., Livingston.
Sullivan, T. J., Butte.

NEBRASKA.

Calkins, F. E., Fremont.
Hawthorne, R. A., Maywood.
Houser, M. A., Arapahoe.
Loomis, M. M., Omaha.
Muirhead, A. L., Omaha.
Murdoch, R. J., Blair.
Pierce, R. P., Ruskin.
Schultz, H. H., Sutton.
Stokes, A. C., Omaha.
Zoll, F. C., Marquette.

NEVADA.

Gregory, E. B., Reno.

NEW HAMPSHIRE.

Aldrich, L. C., Jefferson.
Carleton, E. H., Hanover.
Clarke, G. H., Concord.

NEW JERSEY.

Atherton, A. L., Atlantic City.
Campbell, W. K., Long Branch.
Cory, H. C., Newark.
Kuehne, Richard, Jersey City.
Ridgway, W. F., Atlantic City.

NEW MEXICO.

Wilson, W. A., Willard.

NEW YORK.

Ackert, W. S., Poughkeepsie.
Andrews, H. I., Ithaca.
Armstrong, D. F., Auburn.
Bang, R. Y., New York.
Barron, W. E., Addison.
Bartlett, W. A., New York.
Beer, Edwin, New York.
Blodgett, F. J., New York.
Bodine, J. A., New York.
Brewer, F. H., Utica.
Brown, W. B., New York.
Caldwell, E. W., New York.
Carr, M. L., New York.
Chase, W. B., Brooklyn.
Conklin, W. L., Dansville.
Comman, L. R., Rochester.
Crim, F. D., Utica.
Davis, A. T., Utica.
Dederick, A. S., Troy.
Drayton, H. S., New York.
Dowd, C. N., New York.
Farrell, B. P., New York.
Fay, A. S., Schenectady.
Fitzgerald, C. F., New York.
Fodder, W. L., Schenectady.
Frankl, Julius, Anamoosa.
Freeman, R. G., New York.
Glass, J. H., Utica.
Goddard, W. W., Schenectady.
Goodman, H. L., New York.
Goodridge, Malcolm, New York.
Gromann, John, Utica.
Hale, H. E., Jr., New York.
Hart, T. S., New York.
Hubby, L. M., New York.
Johnson, J. R., Syracuse.
Keough, M. J., Cohoes.
Kysor, L. M., Hornell.
Laase, C. F., New York.
Lawrey, Nicholas, Brooklyn.
Leadley, F. P., Rochester.
MacFarlane, A., Albany.
MacPhee, J. J., New York.
Maurer, G. E., New York.
McBarron, J. D., New York.
Miller, F. E., New York.
Mittelstaedt, G. B. J., New York.
Mogill, J. W., Rochester.
Norton, N. R., New York.
Peckham, A. L., Poughkeepsie.
Perry, E. C., Avon.
Robinson, A. L., New York.
Rosenberg, Max, New York.
Seibert, August, New York.
Stearns, H. S., New York.
Stone, W. S., New York.
Sumner, C. W., North Granville.
Taylor, F. L., New York.
Taylor, H. C., New York.
Townsend, T. M., New York.
Travis, A. H., New York.
Ullman, G. L., Albany.
Volkenberg, Albert, New York.
Williams, W. R., New York.
Winne, C. K., Jr., Albany.

NORTH CAROLINA.

Bulluck, D. M., Wilmington.
Highsmith, Seavey, Fayetteville.
MacKeathan, J. A., Fayetteville.
Teague, R. J., Durham.
Wood, E. J., Wilmington.

NORTH DAKOTA.

Greene, Lee Bey, Monango.

OHIO.

Emerson, H. H., Gratis.
Fiser, J. H., Malinta.
Fitton, F. M., Hamilton.
Hoover, D. E., Warren.
Hugg, A. A., Middleport.
Pennock, Frank, Marlboro.
Wiltshire, J. M., Chillicothe.

OKLAHOMA.

Boyle, G. A., Enid.
Lewis, A. R., Ryan.
Logan, W. A., Lehigh.
Rolster, J. B., Oklahoma City.

OREGON.

Jones, N. W., Portland.

PENNSYLVANIA.

Arnold, C. A., Allegheny.
Baldwin, H. L., Tioga.
Beardsley, E. J. G., Philadelphia.
Birchard, F. S., Montrose.
Bitzer, N. E., Lancaster.
Boyle, P. F., South Bethlehem.
Buterbaugh, H. B., Indiana.
Da Costa, John C., Jr., Phila.
Dasher, J. H., Erie.
Duff, R. H., Girard.
Duncan, H. A., Philadelphia.
Fisler, H. C., Easton.
Gayley, W. C., Hazleton.
Henderson, W. B., Philipsburg.
Hermann, M. E., Dushore.
Hines, E. P., Great Bend.
Houghton, C. W., Philauelphia.
Hunter, W. R., Erie.
Kelly, J. A., Carbondale.
Ludlum, S. D., Merion Station.
McKee, F. L., Plymouth.
Miller, C. D., Pottsville.
Reynolds, C. B., Philadelphia.
Richards, E. W., Easton.
Roxby, J. B., Swarthmore.
Schlindwein, G. W., Erie.
Stalberg, Samuel, Philadelphia.
Smith, H. B., Philadelphia.
Smith, L. H., Hazleton.
Stewart, T. S., Philadelphia.
Swan, T. E., Easton.
Swayne, Eugene, Philadelphia.
Wagner, E. E., Wilkes Barre.

RHODE ISLAND.

Pierce, E. E., Providence.

SOUTH CAROLINA.

Dendy, W. R., Pelzer.
Jenkins, E. O., Troy.

SOUTH DAKOTA.

Burnside, I. M., Highmore.
Collisi, N., Vermillion.
Denman, Homer, DeSmet.
Egan, M. H., Sioux Falls.
Wicherski, O. G., Frankfort.

TENNESSEE.

Brush, C. E., Nashville.
Cock, W. S., Bolivar.
De Witt, Paul, Nashville.
Duckworth, W. C., Jackson.
Fleenor, C. W., Holston Valley.
Newman, N. R., Covington.

TEXAS.

Adams, G. E., Fort Worth.
Allison, Hendery, Kingsville.
Balding, W. T., Hamilton.
Brumby, W. M., Austin.
Darnell, C. F., Llano.
Domingues, P. J., Kerrville.
Furman, J. M., Ft. Worth.
Gill, J. M. F., Temple.
Gober, J. M., Beaumont.
Goldblum, Jacob, San Antonio.
Gordan, J. B., Stephenville.
Hodges, O. S., Beaumont.
Hooper, P. L., Fort Worth.
Hull, C. F., Carthage.
Jackson, T. T., San Antonio.
Kemp, Joseph, Walnut Springs.
Link, H. R., Palestine.
Livingston, D. S., Llano.
Maples, L. E., Morgan.
Martin, B. Z., Leggett.
McCarver, J. W., Brownwood.
Means, E. A., Dallas.
Miller, R. A., Dublin
Morris, H. C., Brownwood
Morris, S. M., Galveston.
Rhu, Hermann S., Llano.
Rowley, Frances, Galveston.
Rulfs, C. H., Nacogdoches.
Russell, W. E., Duffau.
Smith, P. S., Chalk Mountain.
Stafford, P. H., Grapeland.
Wallace, C. H., Cookville.
Warwick, H. L., Fort Worth.
Woodard, F. C., Grapeland.
Worthington, G. W., Lovelady.
York, J. B., Houston.

VERMONT.

Marvin, David, Essex Junction.

VIRGINIA.

Chiles, J. H., Pulaski.
Myers, G. T., Norfolk.
Rawls, J. E., Suffolk.
Trout, H. H., Staunton.

WASHINGTON.

Adams, O. L., Sprague.
Easton, C. E., Seattle.
Teepell, Wm., McMurray.

WEST VIRGINIA.

Benton, G. H., Chester.
Pifer, J. L., Buckhannon.
Stephan, D. E., Fairmont.
Thornton, J. T., Wheeling.

WISCONSIN.

Andrus, A. P., Ashland.
Abraham, H. W., Appleton.
Baker, C. D., Glen Haven.
Callahan, J. L., La Crosse.
Davies, R. E., Waukesha.
Hackett, J. H., Milwaukee.
Kinney, R. H., Lancaster.
McFarland, W. E., Trempelcau.
Minahan, W. E., Fond du Lac.
Rice, E. M., Kewaunee.
Roy, Emile, Fond du Lac.
School, J. G., Oshkosh.
Stormont, C. J., Viola.
Westphal, H. G., Polar.

WYOMING.

Burgess, W. A., Cheynne.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Atlantic City, June 4-7.

Oklahoma State Medical Association, Shawnee, May 14-15.
North Dakota State Medical Association, Minot, May 14-15.
Louisiana State Medical Society, New Orleans, May 14-16.
Missouri State Medical Association, Jefferson City, May 14-16.
Arkansas Medical Society, Little Rock, May 15-17.
Iowa State Medical Society, Cedar Rapids, May 15-17.
Maine Med. Assn., Lewiston, June 12-14 (changed from June 5-7).
Michigan State Medical Society, Saginaw, May 15-16.
Montana State Medical Association, Billings, May 15-16.
New Hampshire Medical Society, Concord, May 16-17.
West Virginia State Medical Association, Huntington, May 15-17.
Illinois State Medical Society, Rockford, May 21-23.
Connecticut State Medical Society, Hartford, May 22-23.
Indiana State Medical Association, Indianapolis, May 22-24.
Arizona Medical Association, Bisbee, May 28-29.
South Dakota State Medical Association, Sioux Falls, May 28-30.
Amer. Laryn., Rhin. and Otol. Society, New York, May 30-June 1.
American Academy of Medicine, Atlantic City, N. J., June 1-3.
American Association of Medical Examiners, Atlantic City, June 3.
American Gastro-Enterological Association, Atlantic City, June 3-4.
American Proctologic Society, Atlantic City, June 3-4.
American Urological Association, Atlantic City, June 3-4.

NEW YORK ACADEMY OF MEDICINE.

Regular Meeting of the Section on Surgery, held April 5, 1907.

DR. JOHN F. ERDMANN, in the Chair.

Operation for Habitual Dislocation of Patella.

DR. WILLIAM C. LUSK presented a man, 41 years old, who, six years previous, while running, slipped on some ice and fell over backward, dislocating both his patellæ outward. Afterward, always on flexion of the legs, the patellæ slipped outward over the external condyles. The right knee was operated on by modification of Krogius' method. Krogius divided the aponeurotic structures down to the capsule of the joint along the outer side of the patella, and the ilio-tibial band above, to relieve the shortened tissues on the outside of the joint. Then making a musculo-aponeurotic flap on the inner side of the joint without entering the joint on this side either, he carried this flap in front of the quadriceps extensor tendon around the upper border of the patella and laid the extremity of it in the wound which had been made in the aponeurotic structures at the outer side of the joint, and sewed it there. Then the edges of the wound at the inner side of the joint, made by the removal of the musculo-aponeurotic flap, were sutured together, thus shortening to this extent the tissues at the inner side of the patella, by the support of which the tendency to outward dislocation would be counteracted. Dr. Lusk carried the incision, at the outer side of the patella, upward and inward through the muscle

fibers of the vastus externus to the outer edge of the quadriceps extensor tendon. Finding furthermore, that by Krogius' method only the tip of the musculo-aponeurotic flap would reach into the wound in the divided structures at the outer side of the joint, instead of carrying this flap in front of the quadriceps extensor tendon, he made a blunt dissection beneath the tendon above the subquadricipital bursa and carried the flap through the opening thus made and then laid it in the musculo-aponeurotic wound at the outer side of the knee-joint, which was found to fit accurately from its upper limit down to within half an inch of its lower end. The flap was sutured in place with chromic gut. Operation was performed on January 14. On March 12 the patient gave up the use of his cane. On April 5 he had voluntary flexion of the right leg to 90° and forced flexion of about another 10°.

Fracture of the Patella.

DR. CLARENCE A. MCWILLIAMS presented a man who fell and fractured his patella in five or six places. He prefers the transverse rather than the vertical incision, because it allows the lateral tears in the vasti expansion to be sutured. Three loose pieces of bone were removed, and a purse-string suture was placed around the remaining fragments. The man made a good recovery.

DISCUSSION.

DR. HOWARD LILIENTHAL said that in the ordinary transverse fractures of the patella he has been in the habit of using the massage treatment. In this non-operative treatment the patient was out of bed, but in splints, on the eighth day, and a cure is accomplished on the forty-eighth day. King Edward's fractured patella was not sutured and yet good results were obtained. In cases of comminuted fracture, however, operation is proper.

DR. JOHN M. ERDMANN asked Dr. Lilienthal what he does to bring the fragments together in this massage treatment.

DR. LILIENTHAL replied that he first places an arrangement of tapes above and below the patella, strapping the fragments together, and an ordinary bandage is then applied. During massage, however, everything is removed and the fragments are held in place by an assistant. Massage is given for fifteen minutes morning and night. By the eighth day it is supposed that adhesions have taken place which will hold the fragments together, and then the patient is permitted to get up, but with the splints on.

Drainage in Operations on the Biliary System.

DR. HOWARD LILIENTHAL summed up the vital points as follows: (1) That the scientific and judicious employment of preliminary drainage in obstructive jaundice would probably lessen the dangers of such steps as might be necessary for permanent cure. (2) That the drainage should form the sole object of the surgeon's work until the factor of cholemia had become eliminated. (3) That radical operations should, in most chronic cases be postponed until hepatic engorgement and icterus no longer existed.

DR. A. V. MOSCHCOWITZ said he has never been a believer in hepatic drainage. In all cases requiring drainage, if the common duct is not free, no operation is complete until the duct is made free; if it is free, there is then sufficient drainage into the intestine.

DR. LILIENTHAL emphasized the importance of draining the liver through the gall-bladder by a slow method.

New Operation for Cystocele in Women.

DR. J. RIDDLE GOFFE'S plan is to dissect away the bladder, freeing it entirely from all structures, except those above. He then rotates this viscus on its transverse axis, carries it up and stitches it to the uterus. The work is all done per vaginam. He has had from 50 to 60 cases under observation and he had not learned of a recurrence.

Surgical Anatomy of the Esophagus.

DR. CHAS. R. L. PUTNAM showed how the caliber of the esophagus differs in various parts. He said that the least distensible places were at the beginning and at a point behind the summit of the aortic arch. This point might be pressed on by aneurism of the arch and, therefore, constrictions in this region should have history and physical signs most carefully studied. These narrowings, as shown by the casts, have a surgical significance. They determine the points at which ingested caustic solutions are most apt to be the cause of ulceration and stricture; they might cause an arrest of foreign bodies; where the narrowing in the esophagus is due partly to relations to other organs, changes in the latter might increase the degree of narrowing to the extent of producing a clinical stricture.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

One Hundred and Ninth Annual Meeting, held in Baltimore, April 22-25, 1907.

The President, DR. HIRAM WOODS, of Baltimore, in the Chair.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. Charles O'Donovan, of Baltimore; vice-presidents, Drs. Roger Brooke, of Montgomery County, and H. A. Naylor and George W. Doblin, of Baltimore; secretary, Dr. John Ruhräh; treasurer, Dr. William S. Gardner; members of council, Drs. Hiram Woods, St. Clair Spruill, Howard Bratton, Lewellys F. Barker; State Board of Medical Examiners, Drs. L. A. Griffith and J. A. Stevens; Committee on Library, Drs. J. Whitridge Williams, Harry Adler, H. Barton Jacobs, Mary Sherwood, T. B. Futcher; Committee on Legislation, Drs. John D. Blake, Herbert Harlan, W. W. Goldsborough; delegate to American Medical Association, Dr. Harry Friedenwald; alternate, Dr. G. Milton Linthicum.

As the result of the organization of the society, there are now 900 members. The library, which formed the principal topic of discussion at the meeting, contains over 16,000 volumes, so that its present quarters are entirely inadequate. A canvass is being made to secure, from the profession and citizens of the state, a fund to purchase suitable grounds and to erect a $100,000 building.

Domination of Therapeutics by Commercialism.

The annual oration was delivered by DR. GEORGE H. SIMMONS, Chicago, his subject being "The Commercial Domination of Therapeutics and the Movement for Reform." The paper will appear in full in THE JOURNAL.

The Medical and Chirurgical Faculty; Its Debt to Itself and the Public.

DR. HIRAM WOODS, Baltimore, in summing up his presidential address, said that the society's debt to itself is steady work in component branches to develop their own force. "Self-reliance is the foundation of progress, but it is to be distinguished from self-complacency. One's own limitations should be recognized and help sought if it will be useful. We should develop the spirit of cooperation. Misunderstanding saps strength. Criticism, based on inadequate information, is inconsistent with ordinary fairness. Knowledge can always be obtained by inquiry.

"Our teachers should promote medical organization by instilling into students proper conceptions of their position as members-elect of an honorable profession, and should help young men to apply principles of medical honor to student life. Much worthless and unworthy material will thus be eliminated. By graduation time students should know about the State Faculty and how it can help them. The duty of improving the tone of our profession and eliminating quackery lies at the door of the individual. Legal machinery is adequate; enforcing spirit must come from us. We must develop work among our younger men and make them active factors in the Faculty's life. This should be done through establishing new lines of public usefulness and the study of medico-social questions.

"To the public we owe something more than knowledge of disease. We should take the position of public educators in matters affecting public good and physical well-being. We should secure better relations with the press by giving it, for deliverance to the public, something worth knowing. Legislators should not be left to find information on medical matters

where they can get it, but we should take it to them and use our influence as a united body. All this, at least in my opinion, is only the logical sequence of medical organization. It is antagonized by traditional interpretation of medical ethics, to a greater or less degree. But we are living under a new code which puts ethical responsibility on individual honor rather than on arbitrary rules. This must be the basis of medical organization, for if the factors are faulty the whole will be useless."

The Logical Basis of Neurasthenia.

DR. A. KERR BOND said that "all nerve response is dual; with every nerve impulse is associated its limiting impulse. When nerve force is called into activity, there is evoked likewise its control to restrain it within its proper bounds of area and intensity and duration. With the wakening of any nerve force there is a simultaneous wakening of a definite accompanying force designed to control it. With the neurasthenic we have to deal not only with the cells too fatigued or weak for active impulse, but possibly with cells too fatigued or weak for the twin impulse to restrain. In America we do things to excess in every line of work. In that respect we are a race of neurasthenics."

"Patent" and Proprietary Medicines.

DR. LOUIS B. HENKEL, JR., of Annapolis, spoke of cocain in nervines, in salves and plasters, of arsenic in skin-disease remedies, of iodin in rhematism remedies, of opium in soothing syrups, of nostrums containing nitroglycerin, of stomachic and digestion remedies containing alcohol, of headache remedies causing weak heart, of hair dyes and bleaches injuring the hair and producing baldness.

Indications for Operation in Chronic Suppurative Otitis Media.

DR. H. O. REIK explained the pathology of this disease and referred to the various methods of treatment, according to the conditions encountered in different cases. The prognosis of chronic suppurative otitis media was stated to be good if proper methods of treatment were employed, and he expressed the belief that if due care was exercised in diagnosticating the factors accountable for chronicity in each case and conscientious efforts made to remove or overcome them that only a small minority of even the most chronic otorrheas would require the so-called radical operation. He believed that this operation should properly be held in reserve as a last resort for those cases which do not succumb to milder forms of treatment or simpler surgical measures. He offered the following rules for guidance when considering the treatment of persistent chronic suppurative otitis media: 1. Broadly speaking, practically every case of suppurative otitis media is assumed to be susceptible of cure by one means or another. 2. Every case of chronic suppurative otitis media, without symptoms of intracranial invasion, should be treated patiently and persistently for a reasonable length of time, *but not indefinitely*, by well-directed efforts at cleanliness and antisepsis through the external auditory canal. When it becomes evident that these simple measures or minor operations can not cure the disease, tympano-mastoid exenteration should be advised, unless in a given case there exists some special reason to justify delay and the risks of the disease. 3. The possible dangers of the operation are believed to be far less than those of the disease. 4. The patient should be told that not every case is curable, even by an operation (the percentage of cures in the obstinately chronic cases probably approximating 70 per cent.), that the hearing power will probably not be improved and may be somewhat impaired, but that the serious nature of his disease warrants surgical intervention as a prophylactic measure.

Erysipelatous Cellulitis.

DR. HARRY FRIEDENWALD reported a case of erysipelatous cellulitis of the eyelids in a child, 2 years of age. Threatened gangrene is believed to have been averted and high fever (104°) was promptly reduced by the use of antistreptococcus serum.

The Present Status of Vaginal Cesarean Section.

DR. L. M. ALLEN drew the following conclusions: That vaginal Cesarean section has a decided place in the field of operative obstetrics, but that its indications are limited to those cases where the cervix is not dilated by gentle means, and the pregnancy not advanced beyond the thirty-fourth week. That experience and a careful study of the cervix will demonstrate the fact that it is dilatable by gentler means much more frequently than is ordinarily believed, and if this method be persisted in more radical measures will not be so often necessary. That we should not allow the desire to perform this much-talked-of operation to overbalance our better judgment, and that certainly for the average man more conservative obstetrical operations will be attended by better results than the more radical ones.

Appendicitis.

DR. RANDOLPH WINSLOW reported a case of appendicitis in which the symptoms were so mild that he left the result to Nature. Some days later, while the patient seemed to be convalescing satisfactorily, gangrene set in in the leg and extended up to the knee. The limb was amputated and the patient made a good recovery.

A joint meeting of the society with the Maryland State Conference of Charities and the Maryland State Federation of Women's Clubs was held on the afternoon of April 25. The principal address was made by Dr. Prince A. Morrow, of New York City, on "The Prophylaxis of Social Diseases." Others who addressed a crowded mixed audience on these affections were Dr. Lillian Welsh, Dr. Charles P. Emerson, Dr. Flora Pollack, Dr. Howard A. Kelly and Assistant Commonwealth Attorney Eugene O'Dunne. At the conclusion of this discussion, which created a marked interest, a motion was adopted to organize a Baltimore branch of the American Society of Sanitary and Moral Prophylaxis, and a committee was appointed to carry this motion into execution.

Many other interesting papers were read.

SOUTH CAROLINA MEDICAL ASSOCIATION.

Fifty-ninth Annual Meeting, held in Bennettsville, April 16-18, 1907.

The President, DR. T. PRIOLEAU WHALEY, in the Chair.

Since the adoption, two years ago, of the plan of organization suggsted by the American Medical Association, the South Carolina Medical Association has increased in membership from 300 to 735. It is estimated that about 1,100 physicians are in active practice in the state, and earnest efforts are being made, with every hope of success, to bring the majority of those now unaffiliated into the fold.

Officers Elected.

The election of officers for the year resulted as follows: President, Dr. Legrand Guerry, Columbia; vice-presidents, Drs. R. A. Marsh, Edgefield; J. A. Hayne, Greenville; Mary R. Baker, Columbia; secretary, Dr. Walter Cheyne, Sumter; treasurer, Dr. C. P. Aimar, Charleston.

The next meeting will be held in Anderson, April 15-18, 1908.

Sexual Ignorance Versus Sexual Knowledge.

DR. WALTER CHEYNE, of Sumter, contended that the education of young girls and boys in the proper care of the sexual organs is the only hope for overcoming the disorde incident to certain diseases by preventing the spread of gonorrhea and syphilis. It need not be considered immodest for the mother or father to instruct the child. He recommends the insertion of chapters on sexual hygiene in school physiologies, but not to be studied in mixed classes; proper home instruction, father to son, mother to daughter; greater efforts of the physician for the dissemination of sexual knowledge and its importance among the laity. He also advocated the compulsory examination and legal quarantine of diseased prostitutes.

DISCUSSION.

DR. BURDELL thought a marriage license law, requiring physical examination of the applicant for license, should be passed. (There is no provision for marriage license in South Carolina and no divorce law.)

DR. ROBERT WILSON thought the registration and segregation of prostitutes might tend to increase immoral practices by holding out a guarantee of immunity from disease, of which there could be no certainty. He also called attention to the fact that the discussion of sexual matters excite certain natures, and advised extreme caution and tact among physicians and parents in carrying out Dr. Cheyne's idea.

The County Society.

DR. J. W. JERVEY, of Greenville, urged on the members the importance of exercising their political influence in matters pertaining to the practice of medicine and the health of the state. He expressed the conviction that the recent defeat of certain candidates for governor and attorney-general was due, in large measure, to their attitude in the general assembly toward matters of legislation suggested by the state association. Certain newspapers of the state misunderstood this reference to politics and warmly scored Dr. Jervey and the profession for political tendencies. Other papers took a broader view of the question and commended the views expressed. The publication of a card of explanation by Dr. Jervey has reversed the attitude of the unfavorable press, and the notoriety given the matter among laymen will undoubtedly strengthen the hands of the medical fraternity in their future efforts for favorable legislation.

Other Papers Read.

The following papers were also read:

"Gallstone Disease," by Dr. John B. Deaver, Philadelphia; "Kidney Surgery," by Dr. C. H. Chetwood, New York; "A Demonstration of Zinc-Mercury Ionization Methods for Treatment of Cancer and Surgical Tuberculosis," by Dr. G. Betton Massey, Philadelphia; "The Effect of Eyestrain on the General Health," by Dr. Charles W. Kollock, Charleston; "Suprapubic Lithotomy: Removal of Stone and Hair Pin from the Bladder," by Dr. D. M. Crosson, Leesville; "Report of Interesting Case of Hæmatocele of Long Standing," by Dr. S. C. Baker, Sumter; "Intestinal Parasites: The Importance of Routine Examination of the Feces," by Dr. J. C. Sosnowski, Charleston; "Cancer of the Uterus," by Dr. A. B. Knowlton, Columbia; "The Pharyngeal Lymphatic Ring," by Dr. E. W. Carpenter, Greenville; "General Paralysis," by Dr. J. J. Watson, Columbia; "Responsibility of the Physician in Cases of Carcinoma of the Cervix and of the Breast," by Dr. LeGrand Guerry, Columbia; "Arteriosclerosis of the Uterine and Pelvic Blood Vessels, with Symptoms of Cancer of the Uterus," by Dr. Charles M. Rees, Charleston; "Typhoid Fever: Symptoms and Treatment," by Dr. William A. Woodruff, Cateechee; "The Origin of Disease," by Dr. Fillmore Moore, Aiken; "Some Reasons Why the Medical Profession Should be Better Paid for its Services," by Dr. H. R. Black, Spartanburg; "Encephalocele, with Report of Case," by Dr. H. L. Shaw, Fountain Inn; "Some Experience with Hyoscin Hydrobromid," by Dr. G. A. Neuffer, Abbeville; "Regarding the Action of Certain Familiar Drugs," by Dr. John Forrest, Charleston; "The Successful Treatment of Apparently Hopeless Blindness. A Preliminary Report," by Dr. W. Peyre Porcher, Charleston; "Infant Feeding," by Dr. W. P. Cornell, Charleston.

MEDICAL ASSOCIATION OF GEORGIA.

Fifty-eighth Annual Session, held at Savannah, April 17-19, 1907.

(*Concluded from page 1545.*)

Methylene Blue in the Treatment of Cancer.

DR. HENRY R. SLACK, La Grange, said that ten years ago he read a paper on this subject, which was published in THE JOURNAL, June 27, 1897. In this paper he reported 5 cases, and has since treated 29, but gave only 3, as they are fairly representative. He has selected these 3 cases not because they have given the most brilliant results, but because of their peculiar interest. Case 1 had been pronounced an inoperable carcinoma of the breast over four years ago; had yielded for a time to Roentgen rays, but after several burns tolerance was established and the disease spread, causing much pain and destroying health. On administering and applying the methylene blue, the disease again yielded, and the patient is now enjoying fairly good health and is free from pain. Case 2 was an epithelioma of the left lower lid, which was benefited by Roentgen rays, but the patient did not get well until the methylene blue was used. Case 3 was one of carcinoma of the uterus following laceration of the cervix, which is being arrested by administration of methylene blue alone.

Of the 29 patients treated with Roentgen ray or combined with methylthionin hydrochlorid, 12 have been dismissed as cured, and 5 have gone over three years without recurrence. The other seven, ranging from five to thirty months since dismissal, shows no evidence of return. There are 9 still under observation, 7 of whom are doing fairly well, as the disease is in abeyance. They suffer very little, and are able to attend to their usual duties. Of the 12 patients cured, 8 had epitheliomas, 3 carcinomas and 1 a sarcoma.

His experience with the methylthionin hydrochlorid teaches him to expect the following results: 1. Everything with which it comes in contact is stained a deep blue; the urine soon looks like blue ink, and the practitioner should always tell the patient to expect this. 2. There is surcease from pain. 3. The general health of the patient is improved and years are added to his life.

Cough and Its Treatment in Tuberculosis.

DR. M. M. SALIBA, Savannah, said that in most cases of tuberculosis the cough is due to irritation of the large air tubes, notably the larynx or at the bifurcation of the trachea, and it is usually associated with more or less catarrh. This kind of irritable cough is best treated with inhalations, dry or moist. The moist inhalations consist of steam, impregnated or not with some balsamic or stimulating aromatic substances, or with some more sedative drug. The dry inhalations are more efficacious and are certainly more convenient. When an asthmatic tendency is associated with phthisis, opium or stramonium cigarettes will, perhaps, be found the best remedy for the night cough. When the cough depends on laryngeal disease, the remedies chosen will be determined to a great extent by the conditions of the larynx, and it may be necessary to apply some sedatives, i. e., cocain and morphin, directly with a brush. A simple means of allaying the cough of laryngeal irritation is sipping iced water. When the cough is due to irritation or hypersensitiveness of the pharynx, combined with laryngeal irritability, a good plan is first to wash away the catarrhal secretion by a warm borax gargle, and then brush the mucous membrane of the pharynx and larynx with a sedative solution.

Fracture of Femur.

DR. JABEZ JONES, Savannah, exhibited an apparatus for the treatment of fractured femur. In the operation of wiring a fractured femur he emphasized two points, the first of which is never make an incision until the limb has been rendered bloodless. Hemorrhage is very alarming when a tourniquet is not used. Second, never operate unless assured of as nearly perfect asepsis as surgery gives to-day.

Aneurismorrhaphy.

DR. CRAIG BARTOW, Savannah, in the past three years has operated on 4 cases, successfully performing two reconstructive endo-aneurismorrhaphies, one obliterative and failing in another.

Multiple Abscess of Pelvis.

DR. E. C. DAVIS, Atlanta, said the proper handling of suppurating conditions is one of the most difficult of all surgical problems, and one which taxes the ingenuity and skill to the highest possible degree; when we add to this the liberation of numerous adhesions and devitalization of tissues to such an extent that sloughing ensues, there was materially added to the difficulties of the problem the dangers of the operative procedures. The case he reported accentuated these difficulties markedly. It illustrated several points which he sums up as follows: 1. Is there any correlation between chronic pelvic suppuration and glycosuria? 2. Nature may cast off a large piece of intestine and recovery ensues. 3. Nature endeavors to make an anastomosis, pointing out what the surgeon ought to do. 4. The utilization of suture material in place of mechanical devices to approximate the ends of intestine. Since this report was contemplated, the author has resected the large and small intestines, using the same suture, with perfectly satisfactory results and no leakage.

Suprapubic Prostatectomy.

DR. E. R. CORSON, Savannah, summarized his paper as follows: The suprapubic route is preferable in the majority of cases. The operation is simpler, can be done more quickly,

cuts fewer tissues, with much less chance of injuring the rectum or prostatic urethra, and with it the sexual function. This route is even better when the patient's condition demands two stages for the operation. He believes the profession is gradually coming to view the suprapubic route as the better of the two in the majority of cases.

Surgical Anesthesia.

DR. J. M. SIGMAN, Savannah, said that no patient should ever be allowed to leave the operating table before being given a stimulant if there is the slightest indication for it. There are more fatalities from neglecting a weak heart in the first two hours after an operation than ever occur while the patient is under anesthesia. A safe anesthetic is dangerous in incompetent hands. A dangerous anesthetic can be given safely by an experienced, competent man. The author thinks that more will depend in many cases on the work of the anesthetist as regards the ultimate recovery of the patient than on the surgeon. Nurses and undergraduates should not be entrusted with a general anesthetic. The anesthetist should be held accountable for the patient's condition while on the table, and to do this legally he must be a licensed physician. All surgeons know that a good anesthetist is almost indispensable, yet there is no class of work given so little encouragement, and few men are willing to follow this line until they become proficient with the first requirements of a good anesthetist.

Rupture of the Uterus.

DR. A. P. HANIE, Hartwell, reported a case of rupture of the uterus in which the fetus escaped into the abdominal cavity. He operated, removed the fetus, and the patient recovered.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. M. A. Clark, Macon; vice-presidents, Drs. Ralph M. Thompson, Savannah, and E. E. Murphy, Augusta; secretary-treasurer, Dr. Louis H. Jones, Atlanta; delegates to American Medical Association, Drs. George R. White, Savannah, and F. H. Harris, Atlanta.

Fitzgerald was selected as the place for holding the next meeting.

Marriages

GEORGE STEURNAGEL, M.D., to Mrs. Jean L. Haskell, both of Chicago, April 27.

FRANCIS C. DUCKWALL, M.D., to Miss Alice Brown, both of Scott, Ohio, April 24.

JAMES M. NEALON, M.D., to Miss Margaret Roan, both of Plymouth, Pa., April 18.

EDWARD W. BANKER, M.D., to Miss Lucile A. Donaldson, both of Aurora, Ill., April 24.

ROBERT H. P. ELLIS, M.D., Baltimore, to Mrs. Ida Van Bussum, at Belair, April 30.

ALICE LILIENTHAL, M.D., Brookline, Mass., and D. Walther Hirshberg, of Boston, recently.

OLIVER J. GRAY, M.D., Wilmington, Del., to Miss Viola Anderson, of Folston, Md., April 17.

ABEL J. BAKER, M.D., Grand Rapids, Mich., to Miss Jeannette M. Baer, of Portage, Mich., April 17.

GAYLORD CRAWFORD HALL, M.D., to Miss Gertrude Dorothy Laib, both of Louisville, Ky., April 25.

PHILIP KINGSWORTH GILMAN, M.D., Baltimore, to Mrs. Ellen Cary Burbank, at Wilmington, Del., March 2.

THOMAS JOSEPH GILMORE, M.D., Williamsport, Pa., to Miss Mary Lyle Sloan, of Orangeville, Pa., April 20.

WILLIAM DICK CAMPBELL, M.D., Hagerstown, Md., to Miss Marie Louise Parsons, at Piedmont, W. Va., April 24.

PAUL R. OESER, M.D., Lawrence, Mass., to Miss Grace Davidson of New London, Conn., in New York City, April 30.

DAVID CUSHMAN TWICHELL, M.D., Saranac Lake, N. Y., to Miss Ella Goodridge Cooke, at Green Spring Valley, Md., May 2.

EDWIN E. STRAW, M.D., Marshfield, Ore., to Miss Sarah C. Lakeman, of Mountain View, Cal., at Santa Rosa, Cal., April 19

Deaths

George W. Smith, M.D. University of Pennsylvania Department of Medicine, Philadelphia, 1863; a member of the Medical Society of the State of Pennsylvania and for many years president of the Blair County Medical Society; assistant surgeon of the Fifty-fourth Pennsylvania Volunteer Infantry during the Civil War; for more than twenty years United States pension examining surgeon; for many years a member and for ten years president of the Hollidaysburg Board of Health, physician to the Blair County almshouse and Blair County jail, died at his home in Hollidaysburg, April 22, from cerebral hemorrhage, after an invalidism of about five years, aged 72.

Charles Griffith Worthington MacGill, M.D. University of Maryland School of Medicine, Baltimore, 1856; a member of the American Medical Association; surgeon of the Second Virginia Infantry, C. S. A.; for more than thirty years a member of the board of visitors of the Maryland Hospital for the Insane, Catonsville; once a member of the board of school commissioners of Baltimore County; vice-president of the Medical and Chirurgical Society of Maryland, and president of the First National Bank of Catonsville; died at his home in that place, April 28, from heart disease, aged 73.

Wilson Cary Nicholas Randolph, M.D. University of Virginia, Department of Medicine, Charlottesville, 1855; a grandson of Governor Randolph of Virginia and a great-grandson of Thomas Jefferson; surgeon in the Confederate service during the Civil War; for 17 years a member of the board of visitors of the University of Virginia, and for eight years rector of the university, died at his home in Charlottesville, April 26, from pleurisy, after an illness of three days, aged 73.

Flavius J. Taylor, M.D. Kentucky School of Medicine, Louisville, 1865; a member of the Kentucky State Medical Association and secretary of the Barron County Medical Society; formerly a member of the city council; editor of the Glasgow *Republican;* secretary of the board of pension examiners; assistant surgeon in the United States Army during the Civil War; died at his home in Glasgow, April 21, from cerebral hemorrhage, after a long illness, aged 70.

William G. McFadden, M.D. Jefferson Medical College, Philadelphia, 1870; surgeon of the Seventy-ninth Indiana Volunteer Infantry, and later brigade surgeon of the First Brigade, Third Division, Twenty-first Army Corps; captured at Chickamauga and imprisoned in Libby prison, Richmond, for three months; after the Civil War a practitioner of Shelbyville, Ind., died in Daytona, Fla., from heart disease, April 20, aged 73.

George Nichols, M.D. Vermont Medical College, Woodstock, 1851; surgeon of the Thirteenth Vermont Volunteer Infantry in the Civil War; state librarian of Vermont from 1848 to 1853; secretary of state of Vermont from 1865 for several years; president of the Northfield National Bank, died April 27, at his home in Northfield, Vt., from nephritis, aged 79.

Edwin M. Shaw, M.D. Medical College of Ohio, Medical Department of the University of Cincinnati, 1885; a member of the State Medical Association of Texas and the Victoria County Medical Society, died at his home in Victoria, January 1, from angina pectoris and hemorrhage of the lungs, after an illness of three days, aged 49.

Thomas Withers Dresser, M.D. New York University Medical School, New York City, 1864; surgeon in the Confederate service during the Civil War, and for 40 years a practitioner of Springfield, Ill., died at the home of his daughter in East St. Louis, Ill., April 27, from pneumonia, after an illness of nine days, aged 70.

Andrew Thomas Dunn, M.D. University of Buffalo (N. Y.) Medical Department, 1863; Faculty of Medicine of Queen's University and Royal College of Physicians and Surgeons, Kingston, Ont., 1864; died at his home in North Augusta, Ont., January 16, after an illness of four or five years, at an advanced age.

F. W. Bernhard von Buest, M.D. University of Leipzig, Germany; during the Civil War brigade surgeon on the staff of Gen. Burnside and Gen. Gordon; some-time member of the New Albany (Ind.) board of health, died at his home in New Albany, Ind., from exhaustion, due to chronic diarrhea, April 3, aged 76.

Winthrop Butler, M.D. Medical School of Harvard University, Boston, 1876; assistant surgeon in the United States Navy during the Civil War; a member of the Massachusetts Medical Society and the Bristol South District Medical Association, died at his home in Vineyard Haven, Mass., April 20, aged 68.

John N. Groves, M.D. Rush Medical College, Chicago, 1866; a member of the Illinois State and Effingham County medical societies; during the Civil War surgeon of the Ninety-eighth Illinois Mounted Infantry and of the Fourth Michigan Cavalry, died at his home in Effingham, April 26, after an illness of five days.

John P. Wilson, M.D. University Medical College of Kansas City, Mo., 1902; of Liberty, Mo.; a member of the Missouri State Medical Association and Clay County Medical Society; coroner of Clay County; was crushed under an overturned wagon, near Randolph, and died April 25, aged 37.

Amos T. Williams, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1900; of Ridgway, Pa.; a member of the Medical Society of the State of Pennsylvania and of the Elk County Medical Society, died at Southern Pines, N. J., February 18, from heart disease, aged 34.

Irene Dupont Young, M.D. Pennsylvania Medical College, Philadelphia, 1848; a member of the Medical Society of New Jersey and Burlington County Medical Society; consulting surgeon at Mercer Hospital, Trenton, N. J., died at his home in Bordentown, N. J., April 26, aged 82.

John Kautz, M.D. Hospital College of Medicine, Louisville, Ky., 1874; a veteran of the Civil War and for many years a practitioner of Dora, Ind., died at the home of his son in Irvington Indianapolis, April 24, from bronchitis, after an illness of a few weeks, aged 72.

Charles Wayne McCoy, M.D. Jefferson Medical College, Philadelphia, 1889; of South Point, Ohio; a member of the Ohio State Medical Association and Lawrence County Medical Society, is reported to have been shot and killed by John Davis, May 2, aged 40.

David Yandell Walsh, M.D. University of Louisville (Ky.) Medical Department, 1897; a member of the Kentucky State and Jefferson County medical societies, died at his home in Louisville, April 28, from pneumonia, after an illness of two weeks, aged 30.

Melvin B. Hubbs, M.D. College of Physicians and Surgeons, Baltimore, 1883; formerly president of the Steuben County (N. Y.) Medical Society and president of the village of Addison, died at his home in that place, April 24, aged 55.

Vandover L. Chester, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1880; for many years a practitioner of Carthage, Mo., died at his home in that city, April 24, from diabetes, after an illness of three months, aged 64.

William Huntington Leonard, M.D. Medical Institution of Yale College, New Haven, Conn., 1853; who had practiced medicine in Minneapolis, Minn., for 52 years, died at his home, April 29, after an illness of almost a year, aged 85.

John Lafferty, M.D. Homeopathic Hospital College, Cleveland, 1876; formerly a member of the board of deputy state supervisors of elections, died at his home in Columbus Grove, Ohio, April 11, after an illness of two months, aged 60.

Herbert K. Stiles, M.D. Medical School of Harvard University, Boston, 1895; formerly house surgeon at Carney Hospital, Boston, of Somervile, Mass., died April 27, at Everett, Mass., from pneumonia, after a short illness, aged 38.

Louis J. Schifferstein, M.D. St. Louis (Mo.) Medical College, 1873; a member of the Illinois State and Effingham County medical societies; a practitioner of Effingham for 25 years, died at his home in that city, April 26, aged 57.

Guy C. Holcomb, M.D. Jefferson Medical College, Philadelphia, 1887; a member of the Bradford County Medical Society and formerly coroner of Bradford County, died at his home in Ulster, Pa., from tuberculosis, April 25, aged 41.

Thomas J. Myers, M.D. Philadelphia College of Medicine and Surgery, 1850; a member of the De Soto (Fla.) County Medical Society; formerly surgeon of the Plant System, died at his home in Bowling Green, Fla., April 21, aged 80

A. G. Henderson, M.D. Jefferson Medical College, Philadelphia, 1861; a member of the Medical Society of the State of North Carolina and Rowan County Medical Society, died at his home in Woodleaf, N. C., March 27, aged 74.

Frank P. Webster, M.D. College of Physicians and Surgeons, Baltimore, 1878; Hahnemann Medical College and Hospital, Philadelphia, 1879; died suddenly from heart disease, April 26, at his home in Norfolk, Va., aged 54.

Ed L. Burdick, M.D. College of Physicians and Surgeons, St. Joseph, Mo., 1871; a veteran of the Civil War; later a member of the state legislature of Arizona and county treasurer; died at his home in Azusa, Cal., April 10.

John James Blacklock, M.D. McGill University Medical Faculty, Montreal, 1851; for 40 years coroner of Stormont, Dundas and Glencarry counties, Ont., died at his home in Morrisburg, Ont., recently, aged 83.

Joseph C. Hall, M.D. Medical College of Ohio, Medical Department of the University of Cincinnati, 1873; died at his home in Decatur, Ill., from uremia, April 24, after an illness of several weeks, aged 67.

Isaac T. Lechtman, M.D. University of Kowno, Russia, 1864; some-time surgeon in the Russian army, and president of the Missouri Medical Society in 1893, died at his home in St. Joseph, Mo., April 11.

Claud A. Thixton, M.D. Hospital College of Medicine, Louisville, 1894; of Louisvile, died at his family home, Fairmount, near Louisville, April 27, from typhoid fever, after an illness of eight weeks, aged 37.

Gustave Schoenberg, M.D. University of Berlin, Germany, 1848; surgeon in the Japanese service from 1874 to 1877; died at his home in Philadelphia, April 19, after an illness of seven years, aged 81.

Alfred A. Moors, M.D. Memphis Medical College (Medical Department of Cumberland University, Memphis, Tenn.) 1854; formerly of West Winfield, N. Y., died in Buffalo, N. Y., March 24, aged 75.

Charles D. Mattison, M.D. College of Physicians and Surgeons, Baltimore, Md., 1899, died at his home in Minetto, N. Y., April 22, from the effects of an overdose of chloral, aged 35.

Robert Purdon McCready, M.D. Jefferson Medical College, Philadelphia, 1905; physician to the Maryd (Pa.) Coal Company, died at Tamaqua, Pa., April 28, from peritonitis, aged 29.

Elijah J. Galbraith, M.D. Medical College of Ohio, Medical Department of the University of Cincinnati, 1870; died at his home in Chillicothe, Ohio, April 23, after a long illness, aged 68.

William Gadson Allen, M.D. Maryland Medical College, Baltimore, 1905; died at his home in Surrency, Ga., March 21, from typhoid fever, after an illness of 26 days, aged 27.

Felix Ferriere, M.D. American College of Medicine, Pennsylvania, 1868; died recently at his home in St. Joseph, Mo., from senile debility, and was buried April 29, aged 86.

William H. Morgan, M.D. Rush Medical College, Chicago, 1874; died at his home in Middletown, Ind., April 18, from tuberculosis, after an illness of a year, aged 67.

Benjamin Tomlin, M.D. Cincinnati College of Medicine and Surgery, 1865; died at his home in St. Louis, April 26, from pneumonia, after an illness of ten days, aged 72.

Lorenzo D. Wiggins, M.D. Geneva (N. Y.) Medical College, 1865; a veteran of the Civil War, died at his home in Wayland, Iowa, April 9, from pneumonia, aged 86.

J. Leroy Blakeman, M.D. New York Homeopathic Medical College and Hospital, New York City, 1899; died at his home in New York City, March 29, aged 34.

George Irvin, M.D. Jefferson Medical College, Philadelphia, 1855; died at his home in Aledo, Ill., April 22, from angina pectoris, after a short illness, aged 81.

John Edgar March, M.D. Bellevue Hospital Medical College, New York City, 1879; died at his home in Partridge Island, St. John, N. B., April 3, aged 50.

Andrew Harkness, M.D. McGill University Medical Faculty, Montreal, 1869; died from pneumonia at his home in Lancaster, Ont., February 6, aged 61.

George Leibrock, M.D. Homeopathic Medical College of Missouri, St. Louis, 1878; died at his home in Mascoutah, Ill., January 24, aged 78.

Charles M. Kellogg, M.D. University of Buffalo (N. Y.) Medical Department, 1884; died at his home in Rochester, N. Y., March 29, aged 61.

Eton B. Crowell, M.D. Eclectic Medical Institute, Cincinnati, 1895; died at his home in Minneapolis, Minn., April 15, from nephritis, aged 47.

Sarah M. Leahy, M.D. Northwestern University Woman's Medical School, Chicago, 1895; died at her home in Anaconda, Mont., in March.

Andrew D. Ingleright, M.D. American Health University, Chicago, 1895; died at his home in North Liberty, Ind., April 19, aged 65..

Adam A. Simmons, M.D. Eclectic Medical Institute, Cincinnati, 1865; died at his home in Girard, Ill., April 22, aged about 80.

Esrom Aram Duclos, M.D. McGill University Medical Faculty, Montreal, 1874; died at his home in Fall River, Mass., April 19.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

MISSISSIPPI State Board of Health, State Capitol, Jackson, May 14. Secretary, Dr. J. F. Hunter, Jackson.

MASSACHUSETTS Board of Registration in Medicine, Room 15, State House, Boston, May 14-16. Secretary Dr. E. B. Harvey, Boston.

FLORIDA State Board of Medical Examiners (Regular), Jacksonville, May 15-16. Secretary, Dr. J. D. Fernandez, Jacksonville.

NEW YORK State Boards of Medical Examiners, Albany, May 21-24. Chief of Examining Division, Charles F. Wheelock, Albany.

NEBRASKA State Board of Health, State House, Lincoln, May 28-29. Secretary, Dr. Geo. H. Brash, Beatrice.

INDIANA Board of Medical Registration and Examination, Room 129, State House, Indianapolis, May 28-31. Secretary, Dr. W. T. Gott, Indianapolis.

Missouri State Board Questions.—Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, sends us the following list of questions asked at the examinations held in St. Louis and Kansas City, April 16-18, 1907:

BACTERIOLOGY.

1. What is meant by "alexins?" 2. Describe in detail Widal's test. 3. Explain serum therapy, and give two illustrations. 4. Describe a method for distinguishing the typhoid bacillus in a post-typhoid abscess. 5. Give in detail a method of staining tubercle bacilli (a) in fluids, (b) in sections.

JURISPRUDENCE.

1. What is superfetation? 2. What is a hermaphrodite? 3. What is sodomy? 4. What are ptomains? 5. In what food is tyrotoxicon found?

HYGIENE.

1. Mention three diseases in which you would institute quarantine. Give period of incubation, length of quarantine and prophylaxis in each. 2. What do you understand by: (a) antiseptics; (b), disinfectants; (c), deodorants. Name three of each class and method of using them. 3. Mention three chemical agents frequently found in milk, used as preservatives. Give test for two of them. 4. What do you understand by ventilation? How much cubic space should be given a school room containing 100 children to insure fresh air? 5. What do you understand by: (a) toxins; (b), antitoxins; (c), predisposition; (d), immunity.

ANATOMY.

1. Name the cranial nerves in their order and with reference to their function. 2. Name the salivary glands. Give exact location and name of ducts through which they discharge. 3. Give origin, insertion and function of the following muscles: (a) Trapezius, (b) sternomastoid, (c) sartorius, (d) pectoralis major. 4. Describe the shoulder joint. 5. What is: (a) Lymph, (b) cellular tissue, (c) adipose tissue, (d) muscular tissue. 6. Describe femoral artery. Give its branches. 7. Give landmarks for locating the mastoid cells. 8. What is the (a) epiblast, (b) hypoblast, (c) mesoblast, and what anatomic structures are formed by each? 9. Give regions of the abdomen and their contents. 10. Mention all abdominal viscera not completely invested by peritoneum.

PATHOLOGY.

1. Give the pathologic changes in chlorosis. 2. Give the pathologic changes in cirrhosis of the liver. 3. Discuss the process in local infection. 4. Discuss the formation of gallstones. 5. Describe the gross appearance of the kidney in chronic interstitial nephritis.

CHEMISTRY.

1. What is the chemical composition of muscular tissue? 2. Give toxicology of opium and treatment for same. 3. Give test for arsenic, (b) for sulphuric acid, (c) for nitric acid. 4. What are some of the chemical characteristics of the chlorids of mercury? 5. Give chemical changes occurring in food during process of intestinal digestion.

SURGERY.

1. Describe in detail the examination and treatment of a scalp wound inflicted by a blow on the head. 2. Give the symptoms and treatment of a penetrating wound of the trachea. 3. Give the causes, symptoms and treatment of acute infective lymphangitis. 4. What are the causes and symptoms of fracture of the patella, and what is the object to be accomplished in the treatment? 5. Differentiate purulent and sanguineous effusion into the knee-joint and describe the treatment of each condition. 6. Enumerate the symptoms of tetanus, and describe the prophylactic treatment as well as the measures to be instituted after the disease has appeared. 7. By what symptoms would you recognize and how would you treat a penetrating wound of the urinary bladder? 8. Describe the steps to be taken in the first dressing of an open, oblique fracture of the tibia. 9. Describe the amputation at the knee, giving the incisions, the structures divided and the dressing of the stump. 10. Give the symptoms and a method of reducing a subglenoid dislocation of the humerus.

THERAPEUTICS.

1 to 10 give indications for use of aconite, belladonna, gelsemium, echinacea, digitalis, nux vomica, opium, quinin, mercury, veratrum viride.

GYNECOLOGY.

1. Describe ovaritis. Describe ovaralgia. Give treatment of each. 2. Describe endometritis. Give pathology, etiology and treatment. 3. Define vaginismus, giving pathology, etiology and treatment. 4. Define pruritus vulva, giving pathology, etiology and treatment. 5. Define prolapsus uteri, giving pathology, etiology and treatment.

OBSTETRICS.

1. When should chloroform be used in a case of labor? Give its effect on mother and child. When is it contraindicated? 2. Distinguish between adherent and retained placenta. Give manner of treating each. 3. Give cause and treatment of mammary abscess in the puerperal state. 4. Give after treatment of incomplete abortion. Give symptoms and treatment of threatened abortion. 5. Give method of caring for the umbilical cord. Discuss hemorrhage of the cord. Give treatment of each. 6. Distinguish a primipara from a multipara. 7. Give description of the placenta and umbilical cord, giving their origin and function. 8. Distinguish false from true labor pains. What is morning sickness? Give treatment for the same. 9. Give manner in which new born should be washed and dressed first time. 10. Give indications for induction of premature labor with best time for same and prognosis.

PHYSIOLOGY.

1. Describe cerebellum and give its function. 2. Name digestive ferments and give function of each. 3. Describe the heart cycle. 4. Give brief description of special sense of hearing. 5. (a) Describe mammary gland and process of milk secretion. (b) Also causes that lead to variation in quantity and quality of milk. 6. Name ductless glands and give supposed office of each. 7. What do you understand by internal respiration? 8. (a) On what does temperature of human body depend? (b) Why in a healthy individual does it remain practically constant? Given an exposed artery and vein in the living subject, how would you distinguish them without reference to anatomic landmarks? 10. Describe the pneumogastric nerve and give its functions.

PRACTICE.

1. What is dropsy? Give the name or terms by which the various dropsies are known and their location. 2. Give symptoms and treatment of diabetes mellitus. 3. Give the etiology, symptoms and treatment of pericarditis. 4. Give the etiology, symptoms and treatment of cerebrospinal meningitis. 5. Give chief diagnostic symptoms of cancer of stomach. 6. Describe: (a) An irregular pulse; (b) intermittent pulse; (c) dicrotic pulse. 7. What is meant by incubation period? 8. Discuss palpitation of the heart. 9. How would you differentiate a functional derangement from an organic lesion? 10. Give etiology and symptoms of angina pectoris.

Supreme Court Sustains Medical Practice Act.—The United States Supreme Court has entered a decision in the case of the Washington State Medical Examining Board vs. O. V. Lawson of Seattle, confirming the action of the Washington Supreme Court in sustaining the lower court in which Lawson was convicted of practicing medicine illegally and sentenced to three months in the county jail. About two years ago the physicians of Seattle determined to put a stop to the illegal practice of medicine, as carried on in the state. A fund of $2,000 was raised to prosecute illegal practitioners. As a result, a little over a year ago, O. V. Lawson was sentenced to pay a minimum fine and to spend three months in the county jail. At the time of his conviction he was conducting what he called the "State Medical Institute," and was doing an advertising business. He was also proprietor of a concern known as the "Victor Medical Company." After being convicted in the lower court, he appealed to the Superior Court, thence to the Supreme Court of the state, and finally to the United States Supreme Court. The points made by him in his brief before the United States Supreme Court were that he was deprived of his liberty without due process of law, that he was deprived equally of the protection of the law contrary to the fourteenth amendment, and that the medical practice act of the State of Washington is unreasonable, uncertain, indefinite, and therefore void. The decision of the Supreme Court is of importance, not only in this case, but in several others of a similar nature which are pending, awaiting the decision on the Lawson case.

Higher Requirements for Washington University and Sioux City College of Medicine.—Dr. Robert Luedeking, dean of the Medical Department of Washington University, St. Louis, writes to us that, at a recent meeting of the faculty, it was decided to require, besides a four-year high school education, a year devoted to physics, chemistry, biology and one language as an additional entrance prerequisite after Jan. 1, 1910. ——Dr. F. E. Franchere, of the Sioux City College of Medicine, Sioux City, Iowa, writes that a similar requirement has been adopted by that school. There are now 45 schools which, after Jan. 1, 1910, will require one or more years of preliminary work in a college of liberal arts.

Wyoming March Report.—Dr. S. B. Miller, secretary of the Wyoming State Board of Medical Examiners, reports the written examination held at Laramie, March 13-14, 1907. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, all of whom passed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per cent.
Gross Med. Coll. Denver		(1896)	80.4
Rush Med. Coll.	(1876) 76.5;	(1879)	77.8
University of Vermont		(1869)	75.

Book Notices

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The therapeutic treatment is taken up from a rational point of view, recognizing that no single drug is a panacea, and that the efforts of the physician must be directed toward combating the toxemia and supporting the heart. In this connection it is rather surprising that the author should declare emphatically against the practice of bleeding even in selected cases. Here again it would seem that the limited series of cases may explain the author's uncompromising stand against the "Bloody Moloch." The rather brief discussion of bronchitis, emphysema, bronchiectasis and asthma is followed by several admirable chapters on pulmonary tuberculosis. The section dealing with treatment and prognosis of pulmonary tuberculosis is decidedly hopeful in tone, in keeping with our more recent views that many of the early cases and not a few of those with more advanced lesions not only may improve, but may terminate in cure. A brief review is given of the newer work on the opsonic index in tuberculosis and the therapeutic use of minimal injections of tuberculin.

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The clinical observations and therapeutic advice are good. The author finds little reason to recommend the application of electricity in gastrointestinal diseases. Acids are useful, he states, but the explanation of their value is not in their digestive power, but in their tonic action. The digestive ferments receive little credit, the author calling attention to the fact that even malt preparations are seldom required because the diastase of the saliva is nearly always sufficient.

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The material used was from twenty-four natives and two Europeans with sleeping sickness and from the tissues of various animals infected with trypanosomes. The book is illustrated by a number of colored plates, showing the histologic changes, and must be regarded as an important contribution to the literature of tropical medicine.

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This work gives a brief résumé of the principles of treatment to be observed in the management of the commoner diseases due to the action of micro-organisms, either directly or indirectly. Under "General Measures," the author discusses: The indications and contraindications for the application of cold baths in fevers; the importance of rest; ventilation and temperature of the sick room; principles of feeding; limitations of treatment by drugs, including the abuse of purgatives.

Under "Specific Infections" are considered invasion of the body by septic micro-organisms and the various contagious and infectious diseases. There are two appendices; one deals with isolation and the other with disinfection.

CATHOLIC CHURCHMEN IN SCIENCE. Sketches of the Lives of Ecclesiastics Who Were Among the Great Founders in Science. By James J. Walsh, M.D., Ph.D., LL.D., Professor of Medical History, Fordham University Medical School. Cloth. Pp. 221. Price, $1.00 net. Philadelphia: The Dolphin Press, 1906.

Dr. Walsh has gathered in this neat little volume some biographical essays which he contributed to various Catholic papers. Among the scientists to whom chapters are devoted are several who were either physicians or noteworthy contributors to medicine: Copernicus, the great astronomer; Basil Valentine, founder of pharmacologic chemistry; Linacre, founder of the Royal College of Physicians of London; Steno, for whom Steno's duct is named, and who was a famous geologist; Kircher, who pointed out contagion and presaged the discovery of bacteria; Hauy, the crystallographer, and Mendel, whose name is linked with our knowledge of heredity. Sufficient is given of the life of each individual to give the reader a general knowledge of the man and his work, omitting the unimportant details.

URINARY ANALYSIS AND DIAGNOSIS. By Microscopical and Chemical Examination. By L. Heitzmann, M.D. Second Revised and Enlarged Edition. 131 Illustrations. Cloth. Pp. 319. Price, $2.50 net. New York: William Wood & Company.

In this edition great stress has been laid on microscopic examination of urine and especially on microscopic diagnosis, but the chemical examination has not been slighted. The tests given are those which may be made by the practitioner rather than those which require an extensive equipment such as can be found only in the large laboratories. The illustrations are not of the routine character found as a rule in text-books of this kind, but have been drawn by the author from his own specimens.

PRACTICAL DIETETICS, With Reference to Diet in Disease, by Alida Frances Patee, Late Instructor in Dietetics, Bellevue Training School for Nurses, Bellevue Hospital, New York City. Fourth Edition. Cloth. Pp. 312. Price, $1.00 net. New York: A. F. Pattee.

Nurses and others who prepare food for the sick will appreciate this practical handbook. The recipes are simple and easily understood.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and methods of treatment for the diseases seen especially in every-day practice. Contributions will be welcomed from our readers.]

THE METRIC SYSTEM AND HOW TO USE IT.

W. A. Jolley, M.D.

BOULDER, COLO.

The revision of the United States Pharmacopeia, with its numerous changes, the work of the American Medical Association in educating the physicians by its investigations of the proprietary preparations, and the fight against patent medicines, have created an opportune time for physicians to get out of a rut and to take a step forward in therapeutics, the knowledge of which has been badly hampered by ignorance of pharmacy. A glance at the prescription file will show that a deplorable condition exists.

NEED OF A UNIFORM STANDARD.

The first step will be a study of the methods of measurements employed. The standards are governed by custom and the physical characteristics of the substances to be handled. Custom has caused many arbitrary standards to suit specific needs, and, as a result, the same term may have a variety of values. For example, an ounce may mean 437.5 grains in the avoirdupois system of weights, or 480 grains in the apothecaries' weights. The term "drop" is even more uncertain, and yet it is used for fancied precision in handling toxic liquids like the tincture of aconite. The size of a drop is dependent: (1) On the liquid to be selected; a drop of water is almost a minim, but it takes four drops of chloroform to make a minim; (2) on temperature, which affects the size of drops, as one can see in handling hot and cold liquids, like syrups and oils; (3) on the size and shape of the orifice, which has a great influence on the size of the drop.

A drop of water is supposed to be a minim, and to weigh 1 grain. The actual weight is 0.9508 of a grain. The weight of an ounce (480 minims) of water then will be $480 \times 0.95 = 456.4$ grains. The quantity "grain" is an arbitrary standard obtained by stating that a cubic inch of water weighs 255.33 grains.

HOW THE METRIC SYSTEM WAS ACQUIRED.

Such standards are so complex, cumbersome and inaccurate that scientific advancement required a system which would be suited to universal use and the accuracy which modern science demands. The system is called the metric system, and has been universally adopted by the scientific investigators who have accomplished so much work during the past twenty-five years. These men are on unknown ground, and unhampered by tradition they have been able to use this new system in their work. Advance along the line of scientific medicine has been retarded by the slipshod manner in which drugs have been prescribed.

All progressive physicians keep abreast with the latest theories and principles of diagnosis, yet these men will not exercise the same care in dispensing the toxic agents, which we call medicines, even when they know that life often depends on the accuracy of the dosage. Naturally some difficulty must be expected in changing methods which have been used for many years, but we have been compelled to adopt new theories. We can change to the metric system without danger or friction, but it must be a genuine conversion. We must drop the old and take up the new without any modifications. Do not transpose doses from the one system to the other, but use the metric alone and insist that the druggists do the same. The metric weights and measures are as easily manipulated as the apothecaries'; the difficulty is in computing the proper dosage. The same method should be applied in studying this new system as in acquiring a foreign language. We learn the name of a certain object in the new tongue, use it repeatedly, and in a short time we can associate the two without mental effort. In the metric system we should ascertain the value of a gram or cubic centimeter, then work with it until we are familiar with it. This will be our basis for all computations.

In dispensing many physicians use the familiar old standard of household measurement—a teaspoon. A moment's work with a graduate will show that with this standard we have long erred, for the contents are far above the dram, which we have always used as its equivalent. This error has been introduced into the metric system, for most tables give the equivalent of a teaspoonful as four (4) cubic centimeters. Actual tests will show that the usual teaspoon will hold five (5) cubic centimeters. The larger quantities used in writing prescriptions are multiples of 5, e. g.—50, 100, 250, 500, 1.000.

(This subject will be continued.)

Diarrhea.

Diarrhea is a term loosely though correctly applied to all forms of intestinal disturbance accompanied by the passage of liquid feces. The treatment of each form depends on its cause; diarrhea is not a disease but a symptom.

Treatment of the catarrhal form consists primarily in regulation of the diet, which should be made up chiefly of milk, boiled or predigested, or of milk whey. Castor oil or some other mild purge such as sulphate of magnesium should be administered to sweep out fermenting food or mucus. Enough laudanum should be given with the oil to prevent griping. Hare, in "Practical Therapeutics," states that it is well to add bicarbonate of soda, grains xx to xxx (1.3 to 2.0) to the dose, both to aid the action of the oil and to render the bowel alkaline (normal) in reaction instead of acid, as caused by t[illegible] fermentation. A mustard plaster or other counterirrit[illegible] should be applied to the abdomen. Often in the milder f[illegible] of mucous diarrhea this is all that is needed, but som[illegible] it is necessary to follow it by tonics and astringent[illegible] following pills are useful:

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The material used was from twenty-four natives and two Europeans with sleeping sickness and from the tissues of various animals infected with trypanosomes. The book is illustrated by a number of colored plates, showing the histologic changes, and must be regarded as an important contribution to the literature of tropical medicine.

HINTS ON THE MANAGEMENT OF THE COMMONER INFECTIONS. By R. W. Marsden, M.D., M.R.C.P., D.P.H., Honorary Physician to the Ancoats Hospital, Manchester. Cloth. Pp. 128. Price, $1.50. New York: E. B. Treat & Co., 1907.

This work gives a brief résumé of the principles of treatment to be observed in the management of the commoner diseases due to the action of micro-organisms, either directly or indirectly. Under "General Measures," the author discusses: The indications and contraindications for the application of cold baths in fevers; the importance of rest; ventilation and temperature of the sick room; principles of feeding; limitations of treatment by drugs, including the abuse of purgatives.

Under "Specific Infections" are considered invasion of the body by septic micro-organisms and the various contagious and infectious diseases. There are two appendices; one deals with isolation and the other with disinfection.

CATHOLIC CHURCHMEN IN SCIENCE. Sketches of the Lives of Ecclesiastics Who Were Among the Great Founders in Science. By James J. Walsh, M.D., Ph.D., LL.D., Professor of Medical History, Fordham University Medical School. Cloth. Pp. 221. Price, $1.00 net. Philadelphia: The Dolphin Press, 1906.

Dr. Walsh has gathered in this neat little volume some biographical essays which he contributed to various Catholic papers. Among the scientists to whom chapters are devoted are several who were either physicians or noteworthy contributors to medicine: Copernicus, the great astronomer; Basil Valentine, founder of pharmacologic chemistry; Linacre, founder of the Royal College of Physicians of London; Steno, for whom Steno's duct is named, and who was a famous geologist; Kircher, who pointed out contagion and presaged the discovery of bacteria; Hauy, the crystallographer, and Mendel, whose name is linked with our knowledge of heredity. Sufficient is given of the life of each individual to give the reader a general knowledge of the man and his work, omitting the unimportant details.

URINARY ANALYSIS AND DIAGNOSIS. By Microscopical and Chemical Examination. By L. Heitzmann, M.D. Second Revised and Enlarged Edition. 131 Illustrations. Cloth. Pp. 319. Price, $2.50 net. New York: William Wood & Company.

In this edition great stress has been laid on microscopic examination of urine and especially on microscopic diagnosis, but the chemical examination has not been slighted. The tests given are those which may be made by the practitioner rather than those which require an extensive equipment such as can be found only in the large laboratories. The illustrations are not of the routine character found as a rule in text-books of this kind, but have been drawn by the author from his own specimens.

PRACTICAL DIETETICS, With Reference to Diet in Disease, by Alida Frances Patee, Late Instructor in Dietetics, Bellevue Training School for Nurses, Bellevue Hospital, New York City. Fourth Edition. Cloth. Pp. 312. Price, $1.00 net. New York: A. F. Pattee.

Nurses and others who prepare food for the sick will appreciate this practical handbook. The recipes are simple and easily understood.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and methods of treatment for the diseases seen especially in every-day practice. Contributions will be welcomed from our readers.]

THE METRIC SYSTEM AND HOW TO USE IT.

W. A. Jolley, M.D.

BOULDER, COLO.

The revision of the United States Pharmacopeia, with its numerous changes, the work of the American Medical Association in educating the physicians by its investigations of the proprietary preparations, and the fight against patent medicines, have created an opportune time for physicians to get out of a rut and to take a step forward in therapeutics, the knowledge of which has been badly hampered by ignorance of pharmacy. A glance at the prescription file will show that a deplorable condition exists.

NEED OF A UNIFORM STANDARD.

The first step will be a study of the methods of measurements employed. The standards are governed by custom and the physical characteristics of the substances to be handled. Custom has caused many arbitrary standards to suit specific needs, and, as a result, the same term may have a variety of values. For example, an ounce may mean 437.5 grains in the avoirdupois system of weights, or 480 grains in the apothecaries' weights. The term "drop" is even more uncertain, and yet it is used for fancied precision in handling toxic liquids like the tincture of aconite. The size of a drop is dependent: (1) On the liquid to be selected; a drop of water is almost a minim, but it takes four drops of chloroform to make a minim; (2) on temperature, which affects the size of drops, as one can see in handling hot and cold liquids, like syrups and oils; (3) on the size and shape of the orifice, which has a great influence on the size of the drop.

A drop of water is supposed to be a minim, and to weigh 1 grain. The actual weight is 0.9508 of a grain. The weight of an ounce (480 minims) of water then will be $480 \times 0.95 = 456.4$ grains. The quantity "grain" is an arbitrary standard obtained by stating that a cubic inch of water weighs 255.33 grains.

HOW THE METRIC SYSTEM WAS ACQUIRED.

Such standards are so complex, cumbersome and inaccurate that scientific advancement required a system which would be suited to universal use and the accuracy which modern science demands. The system is called the metric system, and has been universally adopted by the scientific investigators who have accomplished so much work during the past twenty-five years. These men are on unknown ground, and unhampered by tradition they have been able to use this new system in their work. Advance along the line of scientific medicine has been retarded by the slipshod manner in which drugs have been prescribed.

All progressive physicians keep abreast with the latest theories and principles of diagnosis, yet these men will not exercise the same care in dispensing the toxic agents, which we call medicines, even when they know that life often depends on the accuracy of the dosage. Naturally some difficulty must be expected in changing methods which have been used for many years, but we nave been compelled to adopt new theories. We can change to the metric system without danger or friction, but it must be a genuine conversion. We must drop the old and take up the new without any modifications. Do not transpose doses from the one system to the other, but use the metric alone and insist that the druggists do the same. The metric weights and measures are as easily manipulated as the apothecaries'; the difficulty is in computing the proper dosage. The same method should be applied in studying this new system as in acquiring a foreign language. We learn the name of a certain object in the new tongue, use it repeatedly, and in a short time we can associate the two without mental effort. In the metric system we should ascertain the value of a gram or cubic centimeter, then work with it until we are familiar with it. This will be our basis for all computations.

In dispensing many physicians use the familiar old standard of household measurement—a teaspoon. A moment's work with a graduate will show that with this standard we have long erred, for the contents are far above the dram, which we have always used as its equivalent. This error has been introduced into the metric system, for most tables give the equivalent of a teaspoonful as four (4) cubic centimeters. Actual tests will show that the usual teaspoon will hold five (5) cubic centimeters. The larger quantities used in writing prescriptions are multiples of 5, e. g.—50, 100, 250, 500, 1,000.

(This subject will be continued.)

Diarrhea.

Diarrhea is a term loosely though correctly applied to all forms of intestinal disturbance accompanied by the passage of liquid feces. The treatment of each form depends on its cause; diarrhea is not a disease but a symptom.

Treatment of the catarrhal form consists primarily in regulation of the diet, which should be made up chiefly of milk, boiled or predigested, or of milk whey. Castor oil or some other mild purge such as sulphate of magnesium should be administered to sweep out fermenting food or mucus. Enough laudanum should be given with the oil to prevent griping. Hare, in "Practical Therapeutics," states that it is well to add bicarbonate of soda, grains xx to xxx (1.3 to 2.0) to the dose, both to aid the action of the oil and to render the bowel alkaline (normal) in reaction instead of acid, as caused by the fermentation. A mustard plaster or other counterirritant should be applied to the abdomen. Often in the milder forms of mucous diarrhea this is all that is needed, but sometimes it is necessary to follow it by tonics and astringents. The following pills are useful:

℞. Argenti nitratis.....gr. ii |1
Extracti hyoscyami.....gr. v |3
Ft. pil. No. x. Sig.: One pill three times a day.

℞. Plumbi acetatis
Extracti opii, āā.....gr. ii |1
Ft. in pil. No. x. Sig.: One pill three times a day.

In diarrhea due to nervous disturbance the treatment is radically different. The measures adopted must aim at contracting the dilated and relaxed blood vessels and at restoration of proper nerve supply to the parts. Opium is a valuable drug in this condition, as it stimulates the inhibitory nerves of peristalsis and diminishes the secretion. In some cases, however, it seems to have no effect, and in such patients bromids are generally of service.

Small doses of volatile oils, camphor and spirit of chloroform may be used. As there is relaxation, astringents are indicated and sulphuric acid is peculiarly serviceable as besides being astringent it is eliminated by the lower bowel. The following prescription is useful:

℞. Acidi sulphurici arom.....f℥iv 15|
Olei cajuputi.....gtt. xl 2|65
Fluidextracti hæmatoxyli.....f℥ii 8|
Spiritus chloroformi.....f℥iv 15|
Syrupi zingiberis q. s. ad.....f℥iii 90|
M. Sig.: One teaspoonful in water every two or three hours.

If desired, kino or catechu may be used instead of hematoxylon, or the oil of cloves may be substituted for that of cajuput. Camphor or paregoric may also supplant these drugs.

The following combination has been recommended in acute or obstinate chronic forms:

℞. Acidi sulphurici arom.....m. xlv 2|8
Tincturæ opii deodorati.....f℥ss 2|
Strychninæ sulphatis.....gr. ¼ |016
Spiritus lavandulæ .....f℥ii 8|
Aquæ camphoræ q. s. ad.....f℥iii 90|
M. Sig.: For an adult, one teaspoonful every four hours.

When nausea, vomiting and pain accompany the diarrhea, the following is of value:

℞. Fluidextracti hæmatoxyli
Acidi sulphurici arom., āā.....f℥ii 8|
Tincturæ opii camphoratæ q. s. ad.....f℥iii 90|
M. Sig.: A teaspoonful every three or four hours.

℞. Acidi sulphurici arom.....f℥iss 6|
Spiritus chloroformi
Tincturæ opii camphoratæ, āā.....f℥ii 8|
Syrupi zingiberis q. s. ad.....f℥iv 120|
M. Sig.: A dessertspoonful in water every two hours. Or:

℞. Tincturæ kino
Tincturæ gambir comp., āā.....f℥i 30|
Misturæ cretæ .....f℥iii 90|
Aquæ cinnamomi q. s. ad.....f℥vi 180|
M. Sig.: Shake well before using. A tablespoonful every three hours.

In some instances these attacks appear to depend on hepatic disorder, and the only cure, aside from partial relief, is obtained by the use of mercury in doses of from 2 to 6 grains (0.1 to 0.4), with chalk (hydrargyrum cum creta), or calomel, given in doses of from 1/6 to 1/2 grain (0.01 to 0.03) until 1 or 2 grains (0.06 to 0.13) have been taken. For the purpose of establishing intestinal antisepsis salol may be given in doses of from 5 to 10 grains (0.32 to 0.65) every two or three hours till the effect is evident.

The following combination has been recommended:

℞. Salol .....ʒi 4|
Bismuthi subnitratis .....ʒii 8|
Misturæ cretæ q. s. ad.....f℥iii 90|
M. Sig.: Two teaspoonfuls every two hours.

To quiet the restlessness present in some cases the following has been recommended:

℞. Sulphonmethani (sulphonal) .....gr. ss |03
Sodii bromidi.....gr. ii |13
Spiritus menthæ piperitæ.....gtt. x |65
Aquæ camphoræ .....f℥i 4|
M. Sig.: Take at one dose and repeat every two or three hours for a few doses, if necessary.

In children with summer diarrhea, who pass fetid "mousy" smelling stools with green spinach-like masses of semi-digested food or distinct lientery, the disorder may be due to deficient glandular action in some part of the alimentary canal. In these cases small doses of pepsin and hydrochloric acid are useful. Podophyllin in doses of from 1/50 to 1/40 of a grain (0.0013 to 0.0016) may be given with milk sugar or in alcoholic solution. Ipecac in powdered form may be used in doses of from 1/4 to 1/2 a grain (0.015 to 0.03) three times a day.

When the stools are green and acid the following is useful:

℞. Tincturæ opii deodorati.....m. x |6
Bismuthi subcarbonatis .....ʒiss 6|
Syrupi zingiberis .....f℥vi 23|
Misturæ cretæ q. s. ad.....f℥iv 120|
M. Sig.: A teaspoonful every two or three hours for a child one year old.

The following is also useful:

℞. Tincturæ opii camphoratæ
Tincturæ gambir comp., āā.....f℥iii 12|
Misturæ cretæ q. s. ad.....f℥x 40|
M. Sig.: A teaspoonful four or five times daily for children.

Incompatibles.

REACTION BETWEEN SALTS.

The *Pharmaceutical Journal* calls attention to the fact, well known to students of analytical chemistry, that the production of a precipitate on mixing solutions of two salts is an extremely common occurrence. Sometimes this is intentional, but in dispensing the pharmacist can usually tell what is happening and whether it is intended or not. The following prescription furnishes an example:

Zinci sulphatis.....gr. xl 2|60
Liquoris plumbi subacetatis fort.....ʒiss 6|
Tincturæ opii .....ʒss 15|
Aquæ ad.....ʒvi 90|

In this lotion the prescriber has evidently overlooked the reaction that will occur between the lead subacetate and the zinc sulphate, all the lead being precipitated as sulphate and thus rendered useless.

The same criticism applies equally to the following example, but here the zinc is precipitated as borate:

Sodii boratis.....gr. xx 1|30
Zinci sulphatis.....gr. v |30
Aquæ rosæ ad.....ʒiii 90|

Palatable Medication.

Herman B. Sheffield in the *New York Medical Journal* declares that palatable medication is, to say the least, highly appreciated by sick adults, and is practically indispensable in the management of sick children. The physician who believes in the usefulness of the medicines he prescribes owes it to his patients that they are able to swallow and retain them. As a rule, adults manage, by means of condiments and pleasant beverages, to render drugs disgusting in taste at least acceptable. On the other hand, children are compelled to take the medicine as given to them, and, what is still worse, the more they resist the more they are subjected to anguish and distress, nay, even to corporal punishment which not infrequently borders on actual injury. Indeed, it is not at all rare to find children suffering from acute pneumonia in a state nigh to suffocation from the effects of prolonged and firm compression of the nostrils; and many a child bleeds from gums and lips, and loses a tooth or two through the attempts of the overzealous mother to force down the unfortunate's throat a teaspoonful of a miserable mixture—which was, perhaps, intended only as a placebo.

As most drugs are now obtainable as solid or powdered extracts, adults, whenever possible, should receive their medication in the form of freshly prepared pills or capsules. When it is necessary to administer offensive fluid extracts, tinctures, essential oils and the like, it is best to order them in what Sheffield calls "home-made liquid capsules." The medicine and the empty gelatin capsules are prescribed separately, and the patient is directed, by means of a dropper, to prepare each dose of medicine just before taking it. These capsules are a boon to patients who are averse to taking nauseous mixtures. By means of them tincture of the chlorid of iron or the different hygroscopic medicinal agents, such as the iodids, bromids or chloral can readily be administered.

Medicolegal

Law of Conspiracy Applicable to Abortion Cases.

The Supreme Court of Iowa says, in the case of State vs. Crofford, recently before it on the second appeal, when it affirmed a conviction of murder in the second degree, that one Maude Stone entered the defendant's sanitarium in January, 1901, and remained there until her death, six or seven days later. The charge was that she died as a result of an abortion unnecessarily produced by the defendant. The theory of the state was that this was done in pursuance of a conspiracy between the doctor, one Ira Hammond, and Maude Stone. The defendant insisted that the victim of an abortion can not be a conspirator to commit it.

Section 4759 of the Iowa Code defines the offense by saying that "if any person with intent to produce the miscarriage of any pregnant woman, wilfully administer to her any drug or substance whatever, or, with such intent, use any instrument or other means whatever, unless such miscarriage shall be necessary to save her life," he shall be punished accordingly. This language indicates the design of the lawmakers to treat the woman on whom the act is perpetrated as the victim, and she can not be guilty of this crime. This is in harmony with the conclusion reached by courts generally that she is not to be regarded as an accessory or accomplice. State vs. Smith, 99 Iowa, 26; Moore vs. State, 37 Tex. Cr. R. 552; People vs. McGonegal, 136 N. Y. 62; State vs. Hyer, 39 N. J. Law, 598; Commonwealth vs. Brown, 121 Mass. 69; State vs. Ownes, 22 Minn. 238; Note to Abrams vs. Foshee, 66 Am. Dec. 87. But it does not follow that she may not engage in an unlawful conspiracy with another to perpetrate the offense on herself.

Section 5059 of the Code declares that, if any two or more persons conspire and confederate together to commit a felony, they are guilty of the crime of conspiracy. This offense is distinct from the crime which it is the object of the conspiracy to commit, and the acquittal of one is not a bar to the prosecution of the other. Though she may not be guilty of committing an abortion on herself, it is a crime for another to do so, and, if she conspires with others to perform the act, there is no escape from the conclusion that she is a co-conspirator, and that her declarations in promotion of the common enterprise are admissible in evidence against another conspirator on trial for the commission of the substantive crime. Underhill on Ev. 412. Solander vs. People, 2 Colo. 48.

Furthermore, conspiracy to commit a crime and the crime itself are distinct offenses, and the acquittal of one, as said, is not a bar to the prosecution of the other. So in this case the acquittal of Hammond was not a bar to a trial of him on the charge of having conspired to commit an abortion unnecessarily, and it followed that it furnished no obstacle to an inquiry concerning such conspiracy in the trial of the defendant for murder.

The precise point was determined by the Supreme Court of Indiana in Musser vs. State, 157 Ind. 423; the court saying that "where two or more persons are charged with a substantive offense, not a conspiracy, and it appears that the same was committed in pursuance of a conspiracy, the act and declaration of one shown to have been engaged in the conspiracy to commit such substantive crime are admissible in evidence on the trial of the other defendant, notwithstanding the person whose declarations are sought to be proved had been previously acquitted." And by the Court of Criminal Appeals of Texas, in Holt vs. State, 39 Cr. R. 282. See People vs. Kief, 126 N. Y. 661.

Again, the court says that Hammond was a youth under 20 years of age, and the evidence tended to show that he visited the sanitarium and had a private interview with the defendant on Jan. 12, 1901, and that he was there again about the time Maude Stone arrived and on the 29th, shortly before her death. She reached there on the 22d or 23d of the month, and, as the evidence of the state tended to show, in a normal state of health. This constituted such a prima facie showing of collusion between the defendant and Hammond as justified receiving the declarations of the latter, made in promotion of their common design at any time subsequent to its inception and before its accomplishment.

Maude Stone might have been found to have become an active participant in the conspiracy of Hammond and the defendant, if such there was, from the time she started for the sanitarium. Their design contemplated an abortion on her, and necessarily included either her consent thereto or obtaining control over her person, and her letter to Hammond in connection with his letter to her was admissible as tending to establish her connection with the conspiracy. It was not essential to the admissibility of the evidence that all enter into this unlawful combination at its inception, nor that it be established by direct evidence. If any of them joined therein subsequent to its inception, he thereby adopted the acts of his associates. It was immaterial whether the conspiracy was hatched by Hammond and the defendant, or the former and the deceased.

There always are two things to be considered: First, whether any conspiracy exists, and, next, what share the prisoner had in the conspiracy. But before the evidence of the conspiracy can affect the prisoner materially it is necessary to show that he joined the other therein. The prosecutor may either prove the conspiracy which renders the acts of the conspirators admissible in evidence, or make proof of acts of the different persons and thus prove the conspiracy.

Later Discourtesy not Evidence of Malpractice.

The Supreme Court of Vermont says that in the case of Willard vs. Norcross, brought to recover for alleged malpractice in the treatment of the plaintiff's wrists, there was a charge of intentional injury. To prove the defendant's animus, the trial court received evidence that he treated the plaintiff discourteously after his attendance had ceased. His connection with the case ended in January, and the incidents testified to occurred later than May. The plaintiff's statements, as detailed in the exceptions, were substantially these: She met the defendant once on the overpass, and he turned around and faced her, and acted as though he was going to block her way, and she walked right toward him, and he turned around and went off; nothing being said by either. Another time, she met him on the sidewalk in front of the postoffice, where she considered there was room enough for him to pass, and he ran against her, hitting her shoulder and turning her around, and said nothing by way of excuse or otherwise. On another occasion, he stood on the threshhold of the postoffice, and would not move for her, and she had to squeeze by him. There was nothing else in the case tending to show ill will. The Supreme Court considers that the admission of evidence of this alleged discourteous treatment was error. It says that it is true that evidence having a legitimate tendency to show a defendant's animus in the matter complained of may be found in things subsequently said and done. But the court finds nothing in the cases to indicate that subsequent unconnected expressions of dislike are admissible as proof that an act in itself lawful was improperly done because of malice. It says that there was here nothing more than an opportunity to do a malicious injury in January, and manifestations of ill will commencing five months later. There was nothing in this that tended to show that such improper surgical treatment as there may have been was intentional. The claim of malicious injury was finally waived, but the evidence was prejudicial on the issues submitted.

Places Maintained by Abortionists Are Nuisances.

The First Appellate Division of the Supreme Court of New York had for decision in the case of the People vs. Elsie Hoffman the apparently entirely new question as to a house maintained for the purpose of practicing the vocation of an abortionist constituting a public nuisance. The court holds that such a place does constitute such a nuisance.

The facts set forth in the information and supported by the evidence in this case showed that the defendant advertised in

the public newspapers of the city of New York to the effect that she cured "irregularities or no charge; longest cases; ladies boarded; 213 East Seventy-eighth Street;" that she received into the house indicated a large number of women who were with child, and that she used instruments in producing abortions.

The defendant was charged with maintaining a public nuisance under the provision of sections 385 and 387 of the New York Penal Code. The section concerned, so far as it was involved in this appeal, defines a public nuisance to be "a crime against the order and economy of the state, and consists in unlawfully doing an act, or omitting to perform a duty, which act or omission: (1) annoys, injures or endangers the comfort of persons; or (2) offends public decency."

The defendant insisted that no crime under section 385 of the Penal Code was stated in the information, and that, therefore, the motions on the opening and closing of the case and in arrest of judgment should have been granted. There was no attempt to dispute that the defendant made admissions of the character above stated to the witnesses called by the people, but it was urged on the part of the defendant, that as section 294 of the Penal Code makes abortion a crime of a higher character, there was no jurisdiction in the trial court of the offense charged as a public nuisance. Great reliance was placed on the fact in support of this contention, that no adjudicated case had been found in which it has been held that the maintaining of a house for the purpose of practicing the vocation of an abortionist, constitutes a nuisance.

It is true, as a general proposition, the court says, that if a house is so kept that no one outside of its inmates is disturbed, annoyed or corrupted in their morals, it is not in law a disorderly house. The annoyance of corrupting influence must reach beyond the inmates and affect the public peace or morals of the community (1 Bishop on Criminal Law, Sec. 1051); but the same author says that this doctrine should "not be so applied as to exempt any man from indictment, whose house is practically set open to the public, alluring the young and unwary into it for the purpose of their indulging in anything corrupting to their virtue, sobriety or general good morals. If a man would shield himself from indictment when he allows wicked and corrupting practices within his house he should keep his doors, while those practices are carried on, closed to the outer world." (Sec. 1053.) Again, this same learned author says: "If a house is of common resort for the commission of petty offenses against the laws, such as offenses punishable by fine, it is indictable on this ground, though not otherwise disorderly." (Sec. 1053.) In the following section he declares that this principle is as old as the law itself; that "a man who holds out inducements for people to congregate, and together commit violations of a statute, not only lends the concurrence of his will to their wrongful acts, but also does what most powerfully tends to disrobe the body politic of her virtue, and of the drapery of that order which the hand of government has thrown around her." In section 1057 he continues: "To bring a case within this principle, the particular acts must be either indictable, or, in some sense, unlawful. Therefore, the English court quashed an indictment which charged one with converting a house into a hospital for taking in and delivering lewd, idle and disorderly unmarried women, 'who, after their delivery, went away, and deserted their children, whereby the children became chargeable to the parish.' 'By what law,' asked Lord Mansfield, 'is it criminal to deliver a woman when she is with child?'" In this there is a clear intimation that the indictment would have been good had it charged that the house was for the crime of abortion, rather than the lawful delivery of children.

Construing the provisions of the Penal Code under which this charge was made, in the light of the common law, it is only a just construction to hold that the broad language used embraces the offenses of the common law rule. As before seen, the section defines a nuisance to consist in unlawfully doing an act which annoys, injures, endangers the comfort, repose, health or safety of any considerable number of persons, or offends public decency. This surely is as broad and inclusive in terms as the rule of the common law, which has been made the subject of the code provisions. At common law it would have been, and under the code provisions it is, a nuisance for a person, by public advertisement, to invite and receive a class of the public to his premises for the purpose of violating the laws of the state, as was done in this case. This, in the court's opinion, constitutes "crime against the order and economy of the state" by offending "public decency."

It is the duty, therefore, of this court, in accord with law, to sustain this conviction. The offense of abortion is one thing; that of maintaining premises open to the public for the purpose of consummating that crime, is another and separate offense against the peace and good order of the state. It is an inducement to moral laxity and to crime, and is within the letter and spirit of the sections of the Penal Code here under consideration.

Throwing Pepper Not Attempt to Commit Mayhem.

The Supreme Court of Illinois says, in Dahlberg vs. People, that mayhem (violently depriving another of the use of a member used in fighting), under the common law, while less inclusive than under the Illinois statutes, did include the striking out or blinding of an eye. The Illinois statutes provide that, whoever, with malicious intent to maim or disfigure, puts out or destroys an eye, etc., shall be imprisoned, etc. They also provide that whoever attempts to commit any offense prohibited by law, where no express provision is made by law for the punishment of such attempt, shall be punished, etc. The court does not think that an ineffectual effort to throw red pepper into another's eyes is an assault with attempt to commit mayhem. It does not think that the act of throwing red pepper is such a one as in the course of the usual and natural laws would, if uninterrupted, result in the crime of mayhem. But it says that it did not find it necessary to consider the question as to whether the defendant could be convicted of an attempt at mayhem if, when she threw the pepper, she thought she had employed adequate means, and intended to destroy the eyesight, when, in fact, she used inadequate means for this purpose. There was no testimony in the record tending to show that she so believed and intended, and while in criminal cases the criminal intention may be manifested by the circumstances connected with the perpetration of the offense without any positive testimony as to intention, it certainly could not be inferred because the defendant used inadequate means that she intended to use adequate means.

Damages for Pain, Especially from Injury to Toes.

The Supreme Court of Arkansas says, in St. Louis, Iron Mountain & Southern Railway Company vs. Snell, a personal injury case brought by the latter party, that it is difficult for a jury to estimate the amount of compensation to be allowed for pain and suffering. It is an element of damages which is indeterminate in its character, and of which there is no exact standard of admeasurement. Jurors must exercise their judgment and discretion in fixing fair and just compensation for the injury. It is also a matter of great difficulty and of considerable delicacy for a reviewing court to determine whether or not the amount fixed by the jury is excessive. But there is a limit to the power of the jury, and, when the just limit is transcended by fixing an amount which is clearly excessive, the duty of the court is plain.

In this case the toes of the plaintiff, a child 6 years old, were mashed and bruised, and the skin was rubbed or scraped off. On the left foot the flesh was split about a half inch between two of the toes. No bones were broken or injured, and there was complete recovery in a few weeks; no permanent injury resulting. The witnesses testified that the injury was painful, and that the child appeared to suffer much therefrom, especially when the wounds were dressed. She had slight fever for several days, which the attending physician testified probably resulted from the nervous shock. As there was no permanent injury, mutilation or disfigurement of the child's feet, the only element of damages was the pain and suffering resulting from the wounds. The jury returned a verdict in favor of the plaintiff for $1,500 damages.

The court entertains no doubt that the verdict in this case went far beyond the limit of just compensation to the plaintiff for the pain and suffering which she endured, and that the jury either misconceived the proper standard of measuring the damages, or were prompted by sympathy for the plaintiff to prejudice against the defendant. After careful consideration of the evidence it is convinced that it did not warrant a recovery of an amount exceeding $750.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

April 27.

1 Arteriosclerosis. H. N. Heineman, Bad Nauheim, Germany.
2 *Malignant Disease and Malaria. C. F. Kieffer, Fort D. A. Russell, Wyo.
3 Notes on Six Thousand Cases of Neurasthenia. C. D. Cleghorn, New York.
4 Pathology of Gonorrhea in Women. H. C. Coe, New York.
5 Gonorrhea in Women. W. S. Stone, New York.
6 Gonorrhea During Pregnancy. J. C. Edgar, New York.
7 *The Eye and Ear Complications of Influenza. C. Graef, New York.

2. **Malignant Diseases and Malaria.**—Kieffer concludes from his observations of the occurrence of malaria and cancer in Cuba and the Philippines that there is no real antagonism between malaria and malignant disease. Malarial infection supervening on malignant disease does not modify it. Natives of tropical countries have a relative immunity to malignant disease which varies widely. Adoption of civilized ways of life by natives diminishes this immunity.

7. **Eye and Ear Complications of Influenza.**—Graef says that eye complications are comparatively rare in the course of influenza, while ear complications are frequent. The eye complications are conjunctivitis, inflammations of the lachrymal duct, corneal and lid herpes, and aching pains due to swelling of the lining of the frontal sinuses; embolic processes caused by mixed infections, iritis and glaucoma, as well as nervous disorders of vision. Ear troubles are acute middle-ear catarrh and mastoiditis.

New York Medical Journal.

April 27.

8 *Physical Processes of Immunity and Infection. J. Wright, New York.
9 The Milk Problem. H. G. Piffard, New York.
10 Bursting Fracture and Compound Fracture of the Cranial Vault. J. S. Wight, Brooklyn.
11 Traumatic Luxation of the Head of the Fourth Metatarsal. L. D. Frescoln, Philadelphia.
12 Cystoscopy in Tuberculosis of the Urinary Tract. W. Meyer, New York.
13 *Bacteriologic Examination of Blood: An Hermetically Sealed Bouillon Tube for Bedside Use. G. W. McCaskey, Fort Wayne, Ind.
14 *Severe Ocular Pain Associated with Grippe. J. T. Krall, Philadelphia.
15 Infantile Chorea and Tic, Their Symptoms and Treatment. H. Richardson, Baltimore.
16 *An Unusual Symptom in Chorea. G. E. Price, Philadelphia.
17 Roentgen Rays in Dermatology. R. H. Boggs, Pittsburgh.

8. **Immunity and Infection.**—This is the fifth paper by Wright. In it he discusses the evidences of electro-dynamic forces in the intracellular processes of growth and protection.

13. **Bacteriologic Examination of Blood.**—In order to have a permanent preparation of bouillon always at hand in a readily transportable form, McCaskey has had made an hermetically sealed tube, containing 100 c.c. with sufficient air space for agitation. These tubes, which are contained in a small pasteboard box, are permanent, and when desired for use at the bedside the upper end of the hermetically sealed neck is easily fractured at the line of union with the cap, and the blood which should consist of at least 5 cubic centimeters freshly drawn from a superficial vein in a sterile syringe or through a sterile canula instantly thrown into the bouillon and shaken up with it. In this way the bacteriolysins are immediately diluted to such an extent that they will have no effect on the micro-organisms. Even a few minutes' delay may cause failure. Accompanying the bouillon tube is a small hermetically sealed tube, also with a breakable ring, which contains a sterilized rubber stopper which is immediately placed in the neck of the tube so that contamination will not occur in transit. In the bottom of the phial is also a sterilized pledget of cotton which replaces the rubber stopper as soon as the incubator is reached.

14. **Ocular Pain in Influenza.**—Krall finds that there is an increasing number of cases of endemic influenza complicated by a sudden seizure of excruciating pain, located in the eyeball, lasting two or three days, unattended by symptoms of inflammation, while the eyeball and its appendages present a perfectly normal appearance. The diagnosis is neuralgia of the ciliary nerve due to toxins circulating in the blood acting on the nerve centers or fibers.

16. **Unusual Symptom in Chorea.**—Price refers to the excessive secretion of saliva accompanied by drooling, which is not infrequently seen in all diseases characterized by marked motor disturbances.

Boston Medical Journal.

April 25.

18 History and Ethics in Medicine. J. G. Mumford, Boston.
19 *Thrombosis of the Cavernous Sinuses. H. G. Langworthy, Dubuque, Iowa.
20 Case of a Positive Agglutination Reaction in Icterus. H. A. Christian, Boston.
21 Plea for Conservatism in Gynecology. G. W. Kaan, Boston.
22 Successful Reduction of Dislocation of the Neck. F. M. Sherman, West Newton, Mass.

19. **Thrombosis of Cavernous Sinuses.**—Langworthy gives a detailed report of four cases that followed suppurative otitis media. In one case there was mastoiditis and facial paralysis as well as thrombosis of the lateral sinus, both cavernous sinuses and the internal jugular vein. The patient died from pyemia. The second case was complicated by an extradural abscess; the third case by bronchopneumonia, and the fourth case by meningitis. These three patients also died from pyemia. Langworthy urges resorting to immediate drainage in the treatment of these cases.

St. Louis Medical Review.

April 20.

23 Acute Pan-sinusitis as a Complication of Influenza. R. H. Johnston, Baltimore.
24 Prophylaxis and Treatment of Syphilis. A. Ravold, St. Louis.

Chicago Medical Recorder.

March 15.

25 *Sigmoid Sinus Thrombosis Without Conspicuous Mastoiditis. B. Holmes, Chicago.
26 Hypospadia, Epispadia, Vesical Exstrophy, Urethral Atresia, Ectopia Testis, Hydrocele Funiculi, Hermaphroditism, their Embryology and Clinical Importance. F. A. Leusman, Chicago.
27 *Ordinary and Unusual Diphtheria. C. G. Roehr, Chicago.
28 *Management of Scarlet Fever. H. Spalding, Chicago.

25. **Sigmoid Sinus Thrombosis.**—That sinus thrombosis may occur or be present in a patient who does not present the running ear, or the picture of mastoditis, is shown by Holmes, who reports a case of this kind as a sequel of scarlet fever. An operation was done successfully, and the patient made a complete recovery in three weeks.

27. **Diphtheria.**—Roehr advocates the use of the microscope in diagnosticating diphtheria, and advises giving large doses of antitoxin. In order to get rapid absorption and diffusion of the antitoxin, he dilutes it with normal saline solution. He says that 3,000 units in one quart of normal saline solution will give as good results in one-half hour as 20,000 units of undiluted antitoxin will give in six hours. The greater the concentration of the antitoxin the less rapid its absorption and diffusion. The fluid is injected subcutaneously or intravenously. Roehr reports four cases of diphtheria occurring in nurslings, the disease having been contracted from the mother.

28.—See abstract in THE JOURNAL, March 16, 1907, page 969.

Cleveland Medical Journal.

March.

29 *Early Diagnosis of Gastric Cancer. W. G. Thompson, New York.
30 *Study of One Hundred Cases of Paresis. H. H. Drysdale, Cleveland.
31 *Mediastinal Tumor. M. J. Lichty, Cleveland.
32 *Immediate Results of Conservative Operative Measures on Tubes and Ovaries. H. Robb, Cleveland.
33 *Direct Transfusion of Blood. G. Crile, Cleveland.

34 Foreign Body in Right Bronchus Removed by Aid of Bronchoscope. S. H. Large, Cleveland.
35 Foreign Body in Esophagus Removed by Aid of Esophagoscope. S. H. Large, Cleveland.

29. **Early Diagnosis of Gastric Cancer.**—Thompson summarizes the conditions which combine to make operation not only justifiable, but desirable, as follows: 1. The patient's age should be within the average cancer-developing period, for gastric cases, i. e., between 40 and 65 years. 2. There should be a rapid and decided loss of weight and strength, without other assignable cause, such as chronic gastric catarrh, neurasthenia, mental strain or worry, or chronic general disease, such as diabetes. 3. There should be evidence of some degree of stagnation of food contents in the stomach. 4. There should be failure to improve in marked degree under treatment, after a few weeks' trial. With these four conditions fulfilled, exploration should be seriously considered, despite the absence of gastric pain or other marked gastric symptoms. 5. A leucocytosis of from 12,000 to 16,000 with polynucleosis and a moderate secondary anemia, with low color index. 6. Decided dilatation of the stomach. With these two additional factors, operation is distinctly indicated. 7. Occasional attacks of vomiting, often without definite relation to food ingestion. 8. Occult or visible blood in the vomitus or stools. 9. Epigastric or right hypogastric rigidity and tenderness on deep pressure. The demonstration of hypoacidity or anacidity and the so-called carcinomatous cachexia are often wanting as early definite appearances, and are not always reliable.

30. **Paresis.**—Drysdale presents a complete study of 100 cases of paresis. It is evident that no two cases present the same clinical phenomena and that there does not exist during the developmental period any symptom that might be considered pathognomonic.

31. **Mediastinal Tumor.**—In the case reported by Lichty, the orthopnea the cyanosis, and the edema of the arms, face and neck, were in marked contrast to the pallor and emaciation of the other parts of the body. The skin on the entire body was rather mottled or purpuric, if not copper colored. It was easily irritated, so that the patient was tempted to scratch it constantly. The diagnosis was somewhat in doubt, although the conviction began to grow as the patient was failing rapidly in strength that sarcoma was the most probable cause of the trouble. At the necrospy there was found a large tumor, weighing perhaps one or two pounds, occupying all of the superior mediastinum, surrounding and compressing the afferent and efferent vessels of the heart and both bronchi. Microscopically, the specimen had the appearance of a round-celled sarcoma.

32.—See abstract in THE JOURNAL, March 23, 1907, page 1064.

33. **Direct Transfusion of Blood.**—Crile reports the results of his observations on the feasibility of direct transfusion of blood in pernicious anemia, leukemia, carcinoma, chronic suppuration, tuberculosis, pathologic hemorrhage accompanying jaundice, chronic hemorrhage from the bowel, surgical shock and a number of other conditions. The therapeutic results are grouped into three classes: positive, negative and undetermined. Among the positive results is transfusion in acute hemorrhage, which is apparently final. In pathologic hemorrhage it has proved positive in improving the patient's immediate condition, and in most instances wholly controlled the hemorrhage itself. In shock its value seems far greater than any other remedy which he has hitherto employed. From the experimental standpoint it seems to be the most effective treatment of illuminating gas poisoning. Among the negative results are transfusion in pernicious anemia, leukemia, carcinoma, strychnin poisoning and diphtheria toxemia. Among the undetermined results may be mentioned chronic suppuration with its attendant debility and anemia, tuberculosis and the acute self-limited infectious diseases.

Of the seventeen clinical cases, all were technically successful. In every instance the donee experienced a heightened vitality, and in the absence of serious organic disease the patient became buoyant, even jocose. Some had chills during transfusion or soon after, and a majority showed some febrile reaction later. In the case of serious disease, such as suppuration, pernicious anemia, leukemia, the improvement in the blood picture was not maintained, as in patients having no serious disease or infection. Preliminary notes on this subject were published in THE JOURNAL, July 21, 1906, page 189, and Nov. 3, 1906, page 1482.

Colorado Medicine, Denver.
March.

36 *Hemorrhagic Pancreatitis. O. P. Johnstone, Boulder.
37 Treatment of Neurasthenia. B. Oettinger, Denver.
38 *Bradycardia in Appendicitis. M. Kahn, Leadville.

36. **Hemorrhagic Pancreatitis.**—Johnstone reports four cases of hemorrhagic pancreatitis in which the common bile duct and the pancreatic ducts had separate openings. All the cases terminated fatally and a complete postmortem was made in each case.

38.—This article appeared in THE JOURNAL, Dec. 15, 1906, page 2011.

New York State Journal of Medicine, Brooklyn.
March.

39 *Vulvovaginitis in Children. J. R. Goffe, New York.
40 *Scratching as a Factor in the Etiology, Symptomatology and Treatment of Skin Diseases. E. W. Ruggles, Rochester.
41 *Radical Treatment of Middle-Ear Caries. G. F. Cott, Buffalo.
42 *Pronation of Foot. J. M. Berry, Troy.
43 Typhoid: What Are We Going to Do About It. S. H. Adams, New York.
44 Medical Charities of Manhattan and The Bronx. F. L. Lattimore, Philadelphia.
45 History of the Medical Society of the State of New York. J. J. Walsh, New York.

39. **Vulvovaginitis in Children.**—Goffe reviews this subject generally, and urges a campaign of education to prevent the occurrence of this condition.

40. **Scratching in Skin Diseases.**—Ruggles comments on the rôle played by scratching in the production and continuance of skin diseases, and urges that to treat such cases successfully it is necessary to employ measures which will take the patient's mind away from the desire to scratch. That is, abstinence from scratching is the real therapeutic measure; without it the skin disease will persist indefinitely.

41. **Radical Treatment of Middle-Ear Caries.**—Cott urges the institution of radical treatment of caries of the middle ear, and presents a résumé of 62 cases.

42. **Pronation of Foot.**—Berry calls attention to the fact that pronated foot is the first stage of a progressive weakness and deformity; that it is often overlooked or neglected, and that it can readily be relieved by proper treatment. It is necessary, first, to correct the tendency to deformity, and second, to strengthen the foot, thus curing the tendency to deformity. The use of a brace and a well-selected course of gymnastics are the means employed in the treatment.

Yale Medical Journal, New Haven.
March.

46 *Influence of Flesh Eating on Endurance. I. Fisher, New Haven.
47 Lumbar Lordosis. M. S. Marcy, Peoria, Ill.
48 *Liquid Air in Dermatology. J. D. Gold, Bridgeport, Conn.

46. **Influence of Flesh Eating on Endurance.**—Fisher's experiments indicated that the users of low proteid and non-flesh dietaries have far greater endurance than those who are accustomed to the ordinary American diet. Of the three groups compared, the large flesh eaters showed far less endurance than the abstainers, even when the latter were leading sedentary lives.

48. **Liquid Air in Dermatology.**—Gold says that there is no doubt that liquid air is of decided benefit and that a cure with superior cosmetic effects in pigmented nevi, warts and vascular nevi may be affected with less pain and fewer applications than with caustics or electrolysis. In epithelioma it is of doubtful use. In lupus erythematosus the results obtained have been so encouraging, he states, as to warrant a further trial of the agent.

Texas State Journal of Medicine, Fort Worth.
March.

49 Physical Examination of Railway Employés. J. T. Moore, Galveston.
50 *Intussusception. W. W. Lynch, Midland.
51 Traumatic Affections of the Crystalline Lens. J. O. McReynolds, Dallas.

52 *Value of Gastric Analysis in Treatment of Indigestion. W. G. Cook, Fort Worth.
53 *Use of Oxychlorid of Copper by Cataphoresis in Treatment of Granulated Lids. W. B. Anderson, Brownwood.
54 *Case of Hydropyonephrosis Which Required Both Nephrotomy and Nephrectomy. H. A. Barr and L. Goldstein, Beaumont.
55 Resection of Knee Joint With Reports of Cases. F. Paschal, San Antonio.
56 Collargolum. I. L. Van Zandt, Fort Worth.
57 Ideal Cholecystotomy. J. H. Smart, Dallas.
58 President's Address of Dallas County Medical Society. A. W. Carnes, Hutchins.

50. **Intussusception.**—Lynch reports a case of intussusception which illustrates the difficulty of making a correct diagnosis at an hour sufficiently early to overcome a fatal issue. He concludes his paper as follows: 1. In some cases of intussusception pathognomonic signs may not appear until it is too late for a successful result through laparotomy. 2. A laparotomy would be easy if done in the early hours of the disease, before much swelling occurs, adhesions form, or the bowel becomes gangrenous; and that the risk could not be much greater than in an ordinary laparotomy under the same aseptic precautions. 3. Forty-eight hours, or even twenty-four hours, can not with safety be set as a time limit for the beginning of a radical procedure in the face of an improvement, or the failure of relief by other means. 4. The excessively high mortality in intussusception is due, in most part, to late surgical interference. 5. Only low invaginations are likely to be reduced by hydrostatic pressure, and it should only be tried in the very early hours of the disease, and in some invaginations, especially high ones, it may be misleading and harmful in that class of cases in which improvement is apparent; and a second paroxysm is certain if reduction is incomplete. 6. All patients with intussusception should be operated on in the first twelve or sixteen hours of the disease when a diagnosis is possible, and it is not certain that reduction has been accomplished by other means. 7. In any form of obstruction, except fecal inpaction, when there is a doubt in diagnosis, an exploratory laparotomy should be advised. 8. In proper hands and with the proper technic an early exploration in the acute obstructions would increase the chances of recovery in all these conditions (except fecal impactions), and reduce the mortality of intussusception to a minimum.

52. **Value of Gastric Analysis.**—Cook says that together with the history, symptoms and physical examination, gastric analysis gives additional information by which we are able to make clear the clinical picture, place the case in its proper class and institute a logical and rational method of treatment.

53. **Oxychlorid of Copper by Cataphoresis.**—Anderson uses this agent in the treatment of granulated lids in lieu of the sulphate of copper pencil. The oxychlorid is liberated by electrolysis in the application to the reverted lid of a copper electrode. It shortens the time of treatment; there is not much loss of epithelium; the intervals between treatments may be greater and the results are more permanent than from the use of the sulphate.

54. **Nephrotomy and Nephrectomy.**—The patient whose case is reported by Barr and Goldstein is alive and well, eighteen months after the operation.

University of Pennsylvania Medical Bulletin.

February.

59 The Making of a Museum of Applied Anatomy. G. G. Davis, Philadelphia.
60 *Comparative Antiseptic Power of Salicylic Acid and Its Salts. H. C. Wood, Jr., Philadelphia.
61 *Studies from the Bacteriologic Laboratory. H. Fox, Philadelphia.
62 *Effect of Light on the Development and Staining of Ova in Eosin Solutions. L. P. Shippen.

60. **Antiseptic Power of Salicylic Acid.**—Wood found that although both the air bacteria and the pure culture of colon bacilli were destroyed after one minute's exposure to a 0.5 per cent. solution of salicylic acid, a 2 per cent. solution of sodium salicylate was ineffectual, even after two minutes' exposure. Strontium salicylate gave the same results as did sodium salicylate. The neutralization of benzoic acid gave the same results as salicylic acid. A 1 per cent. solution of sodium salicylate prevented the development of micro-organisms.

61. **Studies from Bacteriologic Laboratory.**—Fox records some observations made on three members of the Bacterium mucosus capsulatus group, and publishes a brief note on the effect of toxin and antitoxin injections on the phagocytosis of diphtheria bacilli.

62. **Effect of Light on Ova.**—Shippen summarizes his findings as follows: 1. Eosin inhibits the development of ova and injures the motility of gastrulæ and blastulæ, and in time kills them. 2. Light has an additional injurious effect on the development of ova and the motility of larvæ in eosin solutions, and shortens the life of the blastulæ and gastrulæ. 3. Certain parts of living organisms can be stained by eosin. It is very probable that the cells of living organisms which take up eosin are dead or dying. Eosin enables us therefore to recognize dead or dying cells in living organisms. It is, furthermore, of interest that cells which take up eosin may be entirely surrounded by a layer of living cells.

Journal of Infectious Diseases, Chicago.

April.

63 A Spirochete in Primary and Transplanted Carcinoma of the Breast in Mice. H. R. Gaylord, Buffalo, N. Y.
64 A Spirochete in Mouse Cancer. G. N. Calkins, Buffalo.
65 *Purpura Hemorrhagica with Generalized Infection with Bacillus Paratyphosus. E. R. LeCount and A. J. Batty, Chicago.
66 *Systemic Blastomycosis. E. R. LeCount and J. Myers, Chicago.
67 Comparative Study of Four Strains of Organisms Isolated from Four Cases of Generalized Blastomycosis. W. W. Hamburger, Chicago.
68 *Diphtheria. H. Albert, Iowa City, Iowa.
69 The So-called Physical Chemistry of Hemolytic Serum. W. H. Manwaring, Indianapolis, Ind.
70 *Trypanosomes of Mosquitoes and Other Insects. F. G. Novy, W. J. MacNeal and H. N. Torrey, Ann Arbor.
71 *Study of the Nature of Streptolysin. G. F. Ruediger, Chicago.
72 *Substitute for Potato as a Culture Medium. P. G. Heinemann, Chicago.

65. **Purpura Hemorrhagica.**—LeCount and Batty describe the clinical, bacteriologic and anatomic findings in a remarkable case of infection with the paratyphoid bacillus in a woman of 36. The clinical course appears to have run over a period of about two months. A prominent clinical feature was the appearance of bluish and purple blotches on various parts of the body. The autopsy showed hyperplasia of the intestinal lymph structures, mesenteric, retroaortic and iliac lymph glands and of the spleen; hemorrhages in the urinary tract, and in the kidneys large gray and grayish-red areas, especially in the cortex and about the bases of the pyramids. The bacteriologic examination resulted in the isolation of a paratyphoid bacillus. The areas in the kidney and the swelling of the lymphoid structures were found to be due to an accumulation of large endothelial cells, often with more than one nucleus. Accumulations of these cells were also found in various other organs. The process in the kidney resembled the acute interstitial nephritis that occurs in scarlet fever, but did not show the plasma cells characteristic of the latter.

66. **Systemic Blastomycosis.**—LeCount and Myers describe the termination and the postmortem findings of the case of systemic blastomycosis reported by Eisendrath and Ormsby in THE JOURNAL A. M. A., Oct. 7, 1905, p. 1045. This case concerns a man of 33, presenting the symptoms of generalized blastomycosis, with most pronounced localization in the skin, subcutaneous tissue and lungs, and in whom there developed, after some time, a gibbus opposite the fourth dorsal veretebra, with subsequent paralysis, death occurring two years and a half from the onset. After death there was found a blastomycotic bronchopneumonia, blastomycosis of the peribronchial lymph nodes, the pleura, retropharyngeal tissue, liver, kidneys, colon, dorsal vertebræ, spinal dura and cerebellum, elbow, knee and ankle joints, and also of the skin and subcutaneous tissue, in which there were ulceration, fistulæ and scars. In the cerebellum there was a conglomerate blastomycotic nodule, in which the organisms, present in large numbers in all the lesions, appeared to be reproducing themselves by sporulation. So far, sporulation has been regarded as not taking place in the tissues in blastomycosis, which differs in this respect from the coccidial disease of California, an outstanding feature of which is the large number of sporulating fungi in the tissues. In this case there was also a definite blastomycotic focus in a peribronchial lymph gland. The colon was the seat of certain remarkable nodules which the authors regard as blastomycotic, in spite of the failure to find in them blastomycetes. The case shows that as the

observations of systemic blastomycosis multiply, new anatomic localizations and other features are constantly being added to those previously recorded.

68. **Diphtheria.**—Albert's article deals with statistics and is not readily abstracted. It will, however, interest health officers, because it describes the method of the Iowa State Board of Health in dealing with the diagnosis and quarantine of diphtheria.

70. **Trypanosomes.**—This is an extensive study of the occurrence of trypanosomes in mosquitoes and other biting insects, the results being of great value in the study of the rôle of these insects as harborers of diseases due to flagellates.

71. **Streptolysin.**—Ruediger here presents additional facts concerning the nature of streptolysin, the complex substance produced by streptococci and able to cause laking of red corpuscles, extending the observations previously made by him. He shows that it is intimately associated with the globulins, from which it has not been separated. Various normal sera have marked antistreptolytic properties, but attempts to produce a specific antistreptolysin did not succeed.

72. **Substitute for Potato as Culture Medium.**—Heinemann's artificial potato medium is made as follows: Fifteen grams of agar are dissolved by heat in about 600 c.c. of water. To this is added 200 c.c. of a watery solution of

Asparagin	5 grams.
Dipotassium hydrogen phosphate	2 grams.
Disodium hydrogen phosphate	2 grams.
Magnesium sulphate	2 grams.
Calcium chlorid	2 grams.
Ammonium lactate	2 grams.

Ten grams of peptone are then added and the mixture filtered after the reaction has been made neutral with phenolphthalein. To this solution is added 30 grams of washed starch in suspension and the mixture heated to near the boiling point. The total should weigh 1,000 grams. The medium is now tubed, sterilized in the autoclave for five minutes at 120 C., and cooled in a slanting position. The advantages of this medium over ordinary potato are: Constant composition, adjustable reaction to suit various purposes, presence of starch and other substances found in potato in highly assimilable form.

International Clinics, Philadelphia.

73 Psychic Treatment of Some of the Functional Neuroses. L. F. Barker, Baltimore.
74 Recent Advances in Prevention and Cure of Tuberculosis. F. P. Gay, Hathorne, Mass.
75 Diagnosis and Treatment of Gastric Ulcer. D. Somerville, London, England.
76 Treatment of Functional Heart Disease. J. J. Walsh, New York.
77 Clinical Diagnosis of Enlargement of the Thymus. A. S. Warthin, Ann Arbor.
78 Functional Capacity of the Heart. G. W. Norris, Philadelphia.
79 Exhaustion and Toxemia as Underlying Factors in the Production of Neurasthenia, Hysteria and Delirium. T. Diller, Pittsburg, Pa.
80 Report of Two Months' Service at Bellevue Hospital. F. S. Dennis, New York City.
81 Neurotic Affections of the Joints. C. A. Morton, Bristol, England.
82 A Surgical Clinic. N. Senn, Chicago.
83 Opening of the Pleural Cavity Without Pneumothorax. T. Tuffier, Paris, France.
84 Disorders of the Umbilicus, with Special Reference to the Newborn and the Infant: Umbilical Infections. A. E. Gallant, New York City.
86 Intraocular Angiosclerosis and Its Prognostic and Diagnostic Significance. G. E. de Schweinitz, Philadelphia.
87 Hysterical Mutism. G. Hudson-Makuen, Philadelphia.
88 Treatment. A. A. Stevens, Philadelphia.
89 Medicine. D. L. Edsall and V. Nisbet, Philadelphia.
90 Surgery. J. C. Bloodgood, Baltimore.

Journal of the South Carolina Medical Association, Greenville.

March.

91 Postoperative Catharsis. A. B. Knowlton, Columbia.
92 Pathology and Therapy of Gallstones. J. A. Hayne, Greenville.
93 Appendicitis. G. R. Dean, Spartanburg.
94 Use of Ergot in Labor. J. H. Allen, Spartanburg.
95 Management of Typhoid. S. F. Blakely, Ora.

The Military Surgeon, Carlisle, Pa.

April.

96 Some Phases of Army Recruiting Work. H. I. Raymond, U. S. A., Columbus Barracks, Ohio.
97 Recent Views on Work of Medical Department in Naval Warfare. J. C. Wise, U. S. N.
98 Economical Plan for Consumptive Sanatorium, with Description of New Tent House. P. M. Carrington and J. R. Thomas, U. S. P. H. & M.-H. Service.
99 Case of Circumcision by a Dog Bite C. R. Browne, Falmouth, England.
100 Surgery at the First-Aid Stations. H. Nimier, French Army.
101 Medical Phases of the Maneuvers of the Ohio National Guard in 1906. E. C. Brush, O. N. G.
102 Sanitary Scuttle-butt. M. F. Gates, U. S. N.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

April 13.

1 *Surgical Forms of Ileocecal Tuberculosis. H. Hartman, Paris.
2 *Treatment of Surgical Tuberculosis. F. J. Steward.
3 *Vaccine Treatment of Tuberculosis in Children. C. Riviere.
4 *Influence of Antituberculosis Serum on the Opsonic Index. W. C. Bosanquet and R. E. French.
5 Relative Opsonic Power of the Mother's Blood Serum and Milk. E. Turton and R. Appleton.

1. **Ileocecal Tuberculosis.**—Hartmann is of the opinion that this form of tuberculosis occurs more frequently than is generally recognized, and that, moreover, when suitable treatment is followed, patients thought to be incurable may be cured. Hartmann has made seven resections for tuberculous disease, with only one fatality, and that occurred before 1900. In the hyperplastic form of cecal tuberculosis he advises resection. In the enteroperitoneal form, or when with a hyperplastic tuberculosis there is an extensive mass of adhesions, he says that the exclusion of the disease is indicated. Usually unilateral exclusion is sufficient. Hartmann reviews 229 cases reported in the literature.

2. **Treatment of Surgical Tuberculosis.**—At the conclusion of this paper, which deals with the subject in the usual manner, Steward reports a case of tuberculous disease of the right kidney and the bladder, in which all the usual methods were tried, without any sign of arresting the progress of the disease, and in which under treatment with tuberculin, apparently complete cure took place.

3. **Vaccine Treatment of Tuberculosis.**—Riviere has treated a number of cases of tuberculosis, such as tuberculous dactylitis, superficial abscess, tuberculous glands, tuberculous joint disease, psoas abscess, abdominal tuberculosis and phthisis, with tuberculin under opsonic determination. He believes that tuberculin is a most valuable remedy for such patients, especially if nutrition is not greatly impaired. With proper dosage a steady improvement occurs both in the local conditions and in the general health. Even the secondary infection lessens severity. He urges, however, that the treatment should be undertaken by none except those who have given it special study.

4. **Influence of Antituberculous Serum on Opsonic Index.**—From an analysis of five cases, Bosanquet and French conclude that a series of daily doses of Marmorek's antituberculous serum will, when administered by rectum, usually produce a rise in the tuberculo-opsonic index. This rise begins after the first three or four doses and soon reaches a maximum, close to which the index remains for three or four weeks, while serum is being given, and does not fall till nearly a week after injections have been omitted. This rise in the opsonic index is coincident in some cases with an improvement in the general condition of the patient and a diminution of the diurnal variation of the temperature. Subcutaneous injections of the serum do not seem to have such a good effect.

The Lancet, London.

April 13.

6 *Increase of Insanity. G. H. Savage.
7 Pathology of Melanotic Growths in Relation to Their Operative Treatment. W. S. Handley.
8 Notes on 130 Consecutive Extractions of Cataract Without a Failure. C. Higgens.
9 *Successful Treatment of Tuberculosis and Leprosy. S. F. Wernich.
10 Five Cases of Inguinal Bubo. G. H. Colt.
11 Treatment of Prostatic Congestion by Electric Methods. J. S. Bolton.
12 Roentgen Rays in the Treatment of Ulcerative Blepharitis. T. L. Bunting.
13 Case of Turpentine Poisoning. G. H. Coltart.

6.—See abstract in THE JOURNAL, April 27, 1907, page 1463.

9. **Treatment of Tuberculosis and Leprosy.**—Wernich publishes a preliminary note on the successful treatment of tuberculosis and leprosy by means of an albuminoid metabolic product, chemically altered, of a bacillus, discovered at Boshof,

Orange River Colony, in 1898, as a practically pure growth in an infusion of an herb that was suspected to contain an alkaloid. Thus far three classes of cases have been treated successfully, tuberculosis of the lungs and glands in the neck, tuberculosis of the skin, and leprosy. The material is administered by the mouth, air dried and pulverized, when the stomach is empty, and usually with a little sodium bicarbonate. The method of obtaining the powder used is described in full. The paper is to be continued in the next issue.

Journal of Tropical Medicine and Hygiene, London.

April 1.

14 Differential Leucocyte Count, with Special Reference to Dengue Fever. A. Balfour.
15 *Onyalai, a Disease of Central Africa. A. Y. Massey.

15. **Onyalai.**—This is a disease that occurs among the blacks of Central Africa, and thus far has not been seen in the white race. The face usually is swollen and painful and there is bleeding from the mouth. Situated in the hard palate and buccal mucous membranes are vesicles distended with blood, ranging from a quarter to a half-inch in diameter. Usually, also, there is hematuria. The disease is regarded by the natives as very fatal, but Massey has treated a number of these patients with bicarbonate of soda in large doses, 40 grains, twice a day, and no fatalities have occurred.

Indian Medical Gazette, Calcutta.

March.

16 Cerebrospinal Meningitis. E. H. Brown.
17 Case of Typho-malarial Fever. C. A. Gill.
18 High Rate of Infantile Mortality in the Chingleput District. J. C. Marsden.
19 Albumosuria and Duration of Albuminuria in Cholera. U. N. Brahmachari.
20 Rheumatism. R. P. Banerjee.
21 Unusual Cases of Ovarian Cyst. N. J. Wanless.
22 Transplantation of the Cornea. E. J. O'Meara.
23 Aneurism of the Common Carotid Artery. O. St. J. Moses.
24 Extraperitoneal Transplantation of Ureters into the Rectum. V. T. Armugam.

Glasgow Medical Journal.

April.

25 *Histologic Diagnosis of Endotheliomata. W. S. Lazarus-Barlow.
26 *Blue Pigmentation of the Tympanic Membrane. J. K. Love.
27 Two Cases of Eye Injury Caused by Burning: Result of Operative and Other Treatment. J. Rowan.
28 Value of Tuberculo-Opsonic Index in Diagnosis. E. T. Fraser.
29 Two Cases of Strangulated Ovarian Tumor, with Symptoms Suggestive of Other Conditions. J. Weir.

25. **Endothelioma.**—During a period of four years Lazarus-Barlow examined microscopically a large number of malignant tumors, of which endothelioma consituted 8 per cent. of the malignant diseases of the tongue, 10 per cent. of the uterus, 10 per cent. of the breast, 10 per cent. of the liver and bile passages, and 7 per cent. of the malignant diseases primarily affecting bone.

26. **Blue Pigmentation of Tympanic Membrane.**—Love has seen half a dozen cases in which the tympanic membrane was discolored in the manner so often seen when gunpowder is ingrained into the skin as the result of an explosion. This pigmentation was associated with deafness or tinnitus, and with thickening or alteration in the curve of the drum membrane. The pigment was on the inner side of the membrane and, therefore, must have reached it through the Eustachian tube.

Dublin Journal of Medical Science.

April.

30 Our Debt to Ireland in the Study of the Circulation. G. A. Gibson.
31 Current Theories of Aphasia. F. C. Purser.
32 Color Vision. J. C. Pretorius.

British Journal of Children's Diseases, London.

March.

33 *Protection of Rheumatic Children. C. O. Hawthorne.
34 Ancient and Modern Methods of Treating Infantile Diarrhea. W. Lauzun-Brown.
35 *Occurrence of Goiter in Parent and Child. E. Jones.

33. **Protection of Rheumatic Children.**—According to Hawthorne, the one influence on which we can depend for the prevention of heart disease in rheumatism is absolute rest so long as the rheumatic poison shows signs of activity.

35. **Goiter in Parent and Child.**—The child, in the cases reported by Jones, did not present any evidence of goiter until she was nearly 6 years of age, when the mother noticed a fulness in the neck that had increased fairly rapidly at first and then more slowly. Except that there was no pulsation, the tumor was identical with the goiter of exophthalmic goiter. Under treatment with thyroid extract, the tumor began to shrink, until after about ten weeks, the thyroid became of about normal size, and it has remained so ever since. No other treatment was employed, beyond attending to the general hygiene of the patient. The mother of this patient had had a goitrous swelling, evidently an adenoma, for about eight years.

Gazette des Maladies Infantiles et d'Obstétrique, Paris.

36 (IX, Nos. 1-4, pp. 1-32.) Efficacy of Caffein in Choreiform Crises in a Child. (Crises chor. calmées par la caféine.) Variot.
37 *Incipient Epilepsy in Children. (Epilepsie chez les enfants.) Nageotte.
38 *Dangers of Lack of Sufficient Food for Infants. (Inanition chez les nourrissons.) Variot.
39 *Hypnosis for Onanism in Children. (Onanisme.) Régis.
40 * Antiseptic Measures After Delivery. (Soins antisept. après l'accouchement.) J. Lucas-Championnière.
41 *Training of School Children in Preventive Antisepsis of the Nose and Throat. (Utilité de l'antisepsie préventive.) Weber.
42 Hyperostosis of Lower End of Humerus as Cause of Ankylosis of Elbow. (Ankyloses du coude.) G. Berne.
43 (Nos. 5-6, pp. 33-48.) *Intermittent Albuminuria. (Albuminuries intermittentes.) H. Gillet.
44 *Epistaxis the Clue to a Particularly Insidious Form of Hemorrhagic Purpura. (Maladie de Werlhof.) E. Escat.
45 Treatment of Influenza in Children. (Grippe chez l'enfant.) H. Gillet.

37. **Epilepsy in Children.**—Nageotte describes various manifestations of incipient epilepsy in children. They were observed almost invariably after some severe acute infection which had evidently induced a slight encephalitis. The majority of such children recover completely in time. A child may become an idiot or may present hemichorea after an attack of whooping-cough, and this masked epilepsy belongs in this same category. In one case a child of 5 seemed frequently startled. Whatever she was doing she stopped at times for a moment and then went on. No one noticed this at the time, but gradually epileptic seizures followed. They yielded to doses up to 2 gm. (grains xxx) of bromids, and the child is now well. She had previously passed through several infectious diseases. Another child, a girl, had suffered from enteritis and scarlet fever, and it was noticed that she grew absent-minded at times in her play. An epileptic seizure gave the alarm, and recovery was soon complete under the bromids. In this child the knee jerk was absent, but she was unusually intelligent. A third type of incipient epilepsy assumes the form of spells of anger; the child throws himself on the ground, the eyes open. In one such case, by the end of a week the eyes had a haggard expression and an epileptic seizure occurred. This type, Nageotte states, also subsides as a rule under the bromids. There is no loss of consciousness in these early manifestations of epilepsy, the trouble being more choreiform in character. The fact that the tongue is not bitten does not exclude epilepsy. Incontinence of urine at night may be an accident, but more often it is a nocturnal seizure. Comby believes that essential epilepsy is very rare; as a rule, the trouble can be traced to some preceding acute infection.

38. **Dangers of Insufficient Nourishment for Infants.**—Variot asserts that an infant should take one-seventh of its weight as its daily ration during the first few months. As there is not much difference in the amount of calories in human and cow's milk, the amount of each should be about the same. Defectively developed infants require even more food than the healthy in proportion. He has made a practice of watching the development of infants on a certain ration, and has thus established the average ration of one-seventh of the weight. With less than this the infant suffers from insufficient nourishment. In one case an infant vomited and was losing weight. The mother had very little milk. He gave the child sodium citrate to stop the vomiting and doubled the amount of milk, going from 300 to 600 gm. (9 to 18 ounces), and the child began to thrive at once. Loss of weight and vomiting are among the signs of insufficient nourishment, but this subject of inanition in infants has not yet received the attention it deserves.

39. **Hypnotism in Treatment of Onanism in Children.**—Régis relates 2 cases in children of 6 and 9, both addicted to almost

incessant masturbation for 2 or more years. After failure of all other measures, perseveringly applied, suggestion under hypnosis cured the younger child, a girl, but the boy resisted even this. Mechanical measures had been tried by the parents for a long time, and Régis thinks that these are directly injurious, accentuating the tendency and rendering it more chronic.

40. **Antisepsis After Accouchement.** — Lucas-Championnière orders that the vulva should be bathed with a hot and strong solution of 50 gm. (℥iss) carbolic acid, with the same amount of glycerin, in a liter of boiled water. In case of any excoriation the following salve is applied: 100 gm. (℥iii) vaselin; 10 gm. (3iiss) boric acid, and 1 gm. (15 grains) balsam of Peru. The vulva is then covered with a compress dipped in a weak solution of carbolic acid, and wrung nearly dry. The toilet is repeated morning and evening with this hot, weak carbolic acid solution except in case of severe vulvar lesions, when a small quantity of a stronger solution can be used.

41. **Systematic Preventive Antisepsis for School Children.**— Weber states that for some time he has been applying the principle of preventive antisepsis of the nose and mouth as a routine measure in his private practice. He here advocates it on a large scale for children in school, saying that the benefits in private practice have been established beyond discussion. He reviews the arguments in favor of the assumption that all the acute eruptive fevers are essentially a lymphangitis. Glandular affections in the neck can often be traced to an apparently insignificant follicular tonsillitis, and the mouth of Stenson's duct shows a reddish circle in case of mumps, resembling the aspect of a stitch-hole abscess, and having the same significance. "How frequently," he remarks, "do we observe an ordinary cold develop; then comes sore throat, followed by a tracheo-bronchitis, and, later, a tuberculous process in the lung." "Daily antisepsis of the upper air passages may ward off all these bacillary infections." He, therefore, urges study of the most practical means to accomplish this end, suggesting that great benefit would certainly follow if school children were trained to wash their hands with soap before taking their places in school, as the hands are the usual vehicle of the "living dust." Each child should also be trained to introduce into each nostril a small amount of some antiseptic salve, and also to gargle with some good antiseptic or to suck an antiseptic tablet, possibly with sulphur for the base.

43. **Intermittent Albuminuria.**—Gillet discusses the albuminuria observed without other signs of nephritis. It may be the result of some lesion in the kidney, but the prognosis, he states, is essentially favorable. The absence of tube casts and of arterial hypertension is a special feature of this form of albuminuria. The unimpaired permeability of the kidney and the arterial hypotension are prominent characteristics of this form, as likewise, although less important, the orthostatic and intermittent character of the albuminuria.

44. **Epistaxis as First Sign of Hemorrhagic Purpura.**—Escat describes 4 cases of hemorrhagic purpura which developed with a peculiarly insidious chronic and latent course, recurring epistaxis being the only sign to attract attention. This should always compel examination of the body of a child in search for ecchymoses, as the purpura is liable to develop unsuspected. In the cases of death from recurring epistaxis on record, many of the children may have been affected with this unsuspected form of this disease. In one of the 4 cases described the patient was a lad of 15 who had had severe epistaxis several times a day for a month. The physician had tamponed the nose and a rhinologist had cauterized the nasal mucosa, but no one had made a general examination. Escat found the body covered with "bruises," as the boy called the numerous ecchymoses observed for several weeks. He was small for his age and intensely anemic, the skin was shiny, with a grayish pallor and greenish reflections, but the boy had no fever or other general symptoms. Long cotton wicks, dipped in 1/5,000 adrenalin were inserted in each nostril and renewed every 12 hours, while 2 gm. (30 grains) of calcium chlorid was given internally. The patient soon recovered under this treatment. The history of another case in a girl of 10 was about the same. The third patient was a child of 3, and epistaxis had recurred two or three times every day, as a rule, during 15 months. The petechiæ observed occasionally were attributed by the parents to bruises. The fourth patient was a child of 6 with recurring severe epistaxis; the mother stated that for three years she had noticed a tendency to extensive ecchymosis on the slightest contusions. The child had an extraordinary appetite, and the mother stated that during her childhood she had been subject to the same tendency to ecchymosis on the slightest provocation. Escat suggests that the chronic character of the purpura in these cases seems to show a close connection between hemorrhagic purpura and hemophilia. Further research will throw light on the question, especially if greater attention is paid to the latent and "walking" forms of hemorrhagic purpura. Rhinologists, especially, should be on the alert to detect it when consulted for recurring epistaxis.

Presse Médicale, Paris.

46 (XV, No. 22, pp. 169-184.) Legislation in Regard to Reform of Medical Education. (Documents officiels.)
47 Technic of Total Vulvo-perineal Colpo-hysterectomy. (Op. de Schuchardt-Schauta.) R. Proust.
48 Clinical Examination of Scapular Region. (Régions scap.) P. Desfosses.
49 Mercurial Stomatitis. (Stom. merc.) M. Letulle.
50 (No. 23, pp. 185-192.) *Cancer of the Pancreas and Diabetes. (Cancer massif du pancréas et diab.) A. Brault and P. Ameuille.
51 *Electric Ionization in Sclerosis and Ankylosis. (Sclérolyse ionique.) P. Desfosses and A. Martinet.
52 Cause of Error in Tests for Albumin. (Recherche de l'albumine.) L. Deval.
53 (No. 24, pp. 193-200.) Surgical Treatment of Fractures of Lower End of Humerus. (Fract. de l'extrémité inf. de l'humérus.) J. Huchet.
54 Prophylaxis of Intestinal Trouble in Infants. (Elévage au biberon.) P. Londe.
55 Diet in Measles. (Régime dans la rougeole.) L. Ramus.
56 (No. 25, pp. 201-208.) Medical Notes from the Battle of Mukden. (Guerre Russo-Jap.) J. J. Matignon.
57 Intoxication from Sodium Salicylate in Children. (Intox. par le salicylate de soude.) A. Martinet.

50. **Cancer of the Pancreas and Diabetes.**—Brault reports a case in which the diagnosis wavered between total cancerous degeneration of the pancreas with symptomatic glycosuria, and cancer with coexisting or preceding diabetes. Autopsy showed that the first assumption was probably correct. The amount of sugar in the urine ranged from 115 gm. to 340 gm., but averaged 150 gm. toward the last, finally subsiding gradually to zero just before death. The patient was a hearty eater, and this is the probable explanation of the glycosuria observed.

51. **Ionization in Treatment of Ankylosis and Sclerosis.**— Desfosses has had much success in the treatment of ankylosed joints by means of electric ionization. His experience confirms that of other workers in this line, demonstrating the superiority of the method to massage and other measures in respect to the resolution of ankyloses. The most efficient substances to date in his experience have been a 2 per cent. solution of sodium chlorid or sodium salicylate. The best results have been obtained with electrodes covering a space of 100 or 200 sq. cm. with a current ranging from 50 to 80 milliamperes, and the sitting lasting for half an hour to an hour. The ankylosis seems to be most readily influenced when of traumatic origin; next in order come the post-infectious ankyloses and last the post-rheumatic. The cathode is applied to the part to be treated. He adds further that cicatrices from burns are effectually influenced by ionization and that the pain of a sprain is reduced.

Archiv. f. Kinderheilkunde, Stuttgart.

58 (XLV, Nos. 1-2, pp. 1-160.) Roentgenoscopy of Bone Affections in Infants with Inherited Syphilis. (Roentgenoscopie von Knochenaffectionen.) O. Reinach.
59 Bacteria Most Frequently Normally Encountered in Child's Mouth, and the Changes Induced by Them. (Bact. in der Mundhöhle des Kindes.) T. Oshima.
60 *Water Treatment of Membranous Croup. (Hydriatik des Croup.) J. Sadger.
61 (Nos. 3-4, pp. 161-320.) *Rational Feeding of Children from Birth to Age of 2 Years. (Rationelle Kinderernährung.) H. Klose.
62 Expert Report on Milk Treated with Trypsin and Lab. ("Ueber "Backhausmilch.") Landmann.
63 (Nos. 5-6, pp. 321-484.) *Gastrointestinal Hemorrhage in the New Born. (Melaena neonatorum.) W. P. Shukowsky.
64 Herpes Zoster in the Eyes of a Child. (Herpes zoster ophthalmicus.) J. M. Rachmaninow.
65 *Deaths in Chorea. (Todesfälle bei Chorea.) Id.
66 *Tumors in Cerebellum in Children. (Kleinhirngeschwülste.) T. Oshima.

67 Albumin Content of Infants' Stools. (Eiweissgehalt.) Id.
68 *Functional Disturbances of the Heart in Scarlet Fever. (Functions-Störungen des Herzens bei Scharlach.) J. W. Troitzky.

60. Water **Treatment of Membranous Croup.**—Sadger reviews the history of hydrotherapy of membranous croup, many remarkable cures having been reported by various writers, commencing with Harder in 1821. The aim seems to be to induce powerful revulsion by sudden douches with cold water, and he urges the revival of the method. Winternitz believes that there is a paresis of the posterior crico-arytenoid muscles which can be conquered by a powerful reflex thermic and mechanical stimulus affecting the respiration center. He reports 4 cases in which this treatment was successfully applied. The body was rubbed with sponges dripping with water at 10 C. (50 F.) for 6 minutes. While this was being done the head and back of the neck were repeatedly douched with cold water from a height, with packs in the interim, until pulse and temperature were nearly or quite normal. Bartels of Kiel has applied the water treatment in a number of severe cases with great benefit, as an adjuvant to intubation or tracheotomy. In case the temperature is low, the child is placed in a warm bath before being given the cold douche. In the cases reported large amounts of the false membrane were coughed up and expelled through the tracheotomy opening. Sadger in conclusion quotes Priessnitz' saying that "water treatment takes character." This applies to the physician as well as to the patient, and half-hearted measures do more harm than good. One writer reported that in 10 years of experience with water treatment all his 28 little patients with membranous croup recovered under it. He repeats the douche whenever the breathing becomes difficult and the croupy cough recurs. In the severest cases, with much fever, he cools off the body by sponging before he attempts the douche. The latter can then be applied without fear, he says. The cold water must be douched suddenly over the head, then over the back of the neck. This causes such a shock that the child takes sudden, deep inspirations and struggles. At first he repeated the douches every hour, in very severe cases, leaving the child in the water for 10 minutes during the first 2 or 3 douches. After the fifth or sixth douche the child is generally so much improved that it asks for food. After each douche the child generally falls into a refreshing sleep. The full details of the older writers on this subject are given *in extenso*, and Sadger adds that the re-introduction of hydrotherapy in the treatment of croup will certainly increase the proportion of recoveries.

61. **Rational Feeding of the Child from Birth to Two Years Old.**—Klose's article won the prize presented by the Soc. Scientifique d'Hygiène Alimentaire et de l'Alimentation rationelle de l'Homme à Paris. It presents in detail and in tabulated form the principles of infant feeding followed in Koht's service at the clinic for children's diseases at Strasburg, and the results observed. He compares them with those obtained elsewhere. The Theinhardt and Biedert mixtures are used as adjuvants to mother's milk in some cases. The infant mortality at Strasburg is about 19 per cent.

63. **Gastrointestinal Hemorrhage in the New Born.**—Shukowsky has observed 29 cases in his own practice. He reviews the history of the subject and states that in 18 of his cases the hemorrhage was rapidly fatal. Gelatin proved promptly successful in certain cases, but it failed completely in the cases of acute hemorrhagic gastroenteritis and of syphilitic dyscrasia. Even the apparently most desperate cases may suddenly take a turn for the better. Mercurial treatment is indicated on suspicion of syphilis. He has witnessed recoveries under chlorid of iron, one drop in a teaspoonful of gruel, milk or sweetened water. Some authorities give it every half-hour, others give one-fourth or one-half drop in water every five minutes. In one case a well-developed child, free from trauma or syphilis, passed bloody stools and vomited blood. The abdomen was bloated, the temperature high. Gelatin was administered without effect, and lavage of the stomach was then resorted to. The stomach was rinsed out with cool physiologic salt solution (54 F.) three times, with a few minutes' interval. The effect was astonishing in this as in a second similar case. Vomiting ceased at once and the children went to sleep and did not wake for twelve or fourteen hours. The stomach was rinsed out again when they woke, and the intestines were flushed with the cool salt solution at each lavage. He had been impressed with the idea of a possible gastrointestinal infection in such cases by the discovery of acute hemorrhagic enteritis in some of the children who had previously succumbed. The coolness of the fluid used in the lavage has a tendency to reduce the supply of blood in the parts. The remarkable promptness of the effect in both these severe cases was impressive. It removed from the gastrointestinal tract the decomposing masses of blood and the bacteria and toxins contained in them. The discovery of severe inflammatory gastrointestinal processes as a not infrequent finding in infants only a few days old justifies prompt lavage of the stomach and intestines in severe cases of melena in the new-born. Autopsy of 4 of the infants revealed extensive hemorrhages elsewhere, but none in the stomach or intestines, although a quantity of blood had been swallowed. In the 14 other fatal cases, autopsy in 12 revealed syphilis, tumor formation, hemorrhagic pneumonia, or hemorrhagic inflammatory processes in the stomach and intestines. Examination of the clots obtained by lavage in the 2 cases mentioned showed staphylococci and streptococci besides other micro-organisms. No medical measures were attempted in one of these cases beyond the lavage.

65. **Two Fatal Cases of Chorea.**—The 2 patients were girls of about 12, and the disease came on abruptly, with extremely violent motor agitation, high fever with unconsciousness, hemiplegia and death in 6 and 13 days. In both cases there were evidences of recent endocarditis and acute enlargement of the spleen, tending to show that death was due to some general infection. Opportunity for infection was obvious in numerous erosions observed on the body. The 2 cases occurred within five months of each other, and were the only fatal cases of chorea known in 175 cases of chorea observed at Moscow for many years. The brain substance was soft, scattered with drops of blood, but no inflammatory focus could be detected.

66. **Tumor in Cerebellum in a Child.**—Oshima's patient was a girl of 6 who gradually exhibited symptoms of a tumor in the brain, pain in the back of the head, accompanied by vomiting, evening and morning, such as is frequently observed with tuberculous meningitis. Loss of consciousness, disturbance in vision to actual blindness, grinding of the teeth, uncertain gait, apathy, loss of appetite and emaciation were the principal manifestations. A large tubercle was found in the cerebellum, with two smaller ones in the cerebrum.

68. **The Heart in Scarlet Fever and Under Serum Treatment.**—Troitzky accepts as established the theory that the heart is affected constantly in case of scarlet fever, feeling the influence of the scarlet fever sepsis or of its products from the first rise in temperature until convalescence passes into complete recovery. The intensity of the epidemic and the severity of the disease do not seem to have any direct, immediate influence on the intensity of the functional disturbance. Although these functional disturbances are not directly dangerous, yet in time they are liable to induce in the child's organism such deviations from the normal as to interfere decidedly with physiologic, physical and mental development. The murmur at the apex and arrhythmia of various kinds are the signs of the functional disturbances most commonly observed. Subcutaneous administration of serum induces abrupt changes in the sphygmographic tracings showing unmistakable changes in the action of the vascular system. Only 23 of the 43 patients in his service recovered in the last epidemic. The ages of the patients ranged from 9 months to 13 years. In the fatal cases arrhythmia was pronounced, the pulse being highly irregular and thready. The signs of congestion in the skin and mucosæ grew more and more pronounced, and the children died in coma. Study of the cases with a favorable termination showed that the pulse was monocrotic, sometimes dicrotic or hyperdicrotic, the arterial pressure corresponding to the age of the child. After injection of serum, the pulse was always monocrotic, irregular, uneven and the blood pressure rose a little. He regards this as indicative of acute transient relaxation of the vessel walls. After the serum has been absorbed the pulse returns to its previous condition, but with low waves, and the blood pressure remains high.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed, page 1386.

69 (XXXI, No. 7, pp. 201-232). *Cure of Melena in a New-Born Infant under Gelatin. (Melaena neonatorum.) G. Schubert.

70 Reply to Kock's Article in No. 50 on Development of Sexual Organs. (Reste des Wolff'schen Ganges beim Weibe.) R. Meyer.

71 Cysts of Gartner's Duct. (Cysten des G. 'schen Ganges.) L. Tarsia.

72 *Bumm's Operating Table. (Op.-Tisch.) W. Liepmann.

73 (No. 8, pp. 233-256.) Decidual Reaction of Maternal Connective Tissue and Vessels in Case of Tubal Pregnancy. (Deciduale Reaktion des müt. Bindegewebes und der Gefässe.) O. v. Franqué.

74 Three Operations for Atresia of the Vagina with Cesarean Section in the Last Interval. (1, Atresia vaginæ; 2, künstliche Bildung der Scheide; Schwangerschaft; konservativer Kaiserschnitt; 3, Herstellung der Scheide sub partu.) A. A. Muratow.

75 (No. 9, pp. 257-280.) Pyometra in the Congenitally Closed Half of a Double Uterus. (Uterus duplex.) M. v. Holst.

76 Extrauterine Pregnancy Simulating Tuberculosis of Peritoneum and Adnexa. (Extra-uterin-Gravidität.) K. Lassaud and A. Wertheim.

77 *Suggestion to Make an Artificial Vagina Out of Lowest Part of Ileum Still Connected with Its Mesentery, but Otherwise Isolated. (Op. bei völligem Mangel der Scheide.) Häberlin.

78 Intrauterine Cry. (Intraut. Kindesschrei.) R. Blumm.

79 (No. 10, pp. 281-304.) *Classification of Contracted Pelves and Prognosis in the Different Forms. (Eintellung des engen Beckens.) K. Baisch.

80. *Prophylaxis and Treatment of Headache after Spinal Anesthesia. (Kopfschmerz nach lumbaler An.) Offergeld.

69. **Gelatin Treatment of Melena in Infants.**—The mother of the infant in the case reported was a primipara with moderately contracted pelvis. The child, a male, was delivered with forceps after 36 hours of labor. He was asphyxiated, but soon revived, and seemed to be perfectly healthy until the fourth day, when slight icterus developed, and he vomited fluid and coagulated blood twice. Ten c.c. of a 2 per cent. solution of gelatin was injected under the skin on each side of the back. The child vomited blood again and passed blood in its stool and the same injection was repeated toward night. The next day there was no vomiting, but the stools were blackish, and 10 c.c. of the gelatin solution was injected again about noon on the fifth day, after which the child developed and nursed normally. During the period of melena he was kept in an incubator as his temperature was subnormal. He weighed 2,770 gm. at birth, and 2,860 gm. by the twenty-sixth day.

72. **Operating Table.**—Bumm's table is distinguished by its simplicity. The end of the table is raised or lowered by means of an oil pump worked by a pedal. The piston of the pump and a single leg at the head of the table are its only supports. Its chief advantage is claimed to be that the field of operation can always be adjusted at the same level.

77. **Artificial Vagina Made from Loop of Ileum.**—Häberlin discusses the present measures for making an artificial vagina in case of complete absence of a normal vagina, and describes a case in which the best efforts failed to produce a permanent vagina and in which a wife was divorced on this account. As cases of the kind are rare, he urges those who have the opportunity to try a new technic which he suggests, and presents a number of arguments that theoretically establish its usefulness. A recess is made in the perineum for the new vagina. The abdomen is then opened and a piece of the lower part of the ileum was resected for about 15 or 20 cm. (8 or 9 inches). The intestine is then reunited. The central end of the resected portion is then sutured, the distal end is closed with a clamp, and the whole is pushed down past the bladder until it emerges in the opening in the perineum. The cervix is implanted in a side opening into the resected intestine. In case of total absence of the uterus the resected portion is merely drawn down into the recess made for it and is sutured to the outer opening. The abdomen is then sutured and the new vagina drained. In experiments on the cadaver and in other operations in the clinic, Häberlin has tested the stretching power of the mesentery of this part of the intestine, and has found that it will stand extreme traction without interference with its vitality.

79. **Classification of Contracted Pelves.**—Baisch writes from Döderlein's clinic to urge classification according to the size of the true conjugate diameter, not according to the shape of the pelvis. The size of the true conjugate is what determines the prognosis. He regards 7 and 7.5 cm. as the limit for a viable child at term, calling this the second degree of contracted pelvis. The first degree includes all down to 8 cm. and the third degree all between 7 and 5 cm. The children are usually smaller with generally contracted pelvis than with flat pelvis.

80. **Prophylaxis and Treatment of Headache After Spinal Anesthesia.**—Offergeld has applied this method of anesthesia in 40 maternity cases, and 22 of the patients suffered from more or less severe headache afterward. He found it possible to arrest the headache almost immediately by withdrawing a little of the cerebrospinal fluid by lumbar puncture. This clinical experience was explained by experiments on rabbits. The findings demonstrated beyond question that the headache is the result of increased pressure in the spinal canal. By allowing the escape of 1 or 2 c.c. of the fluid before making the injection, and restricting the amount of fluid injected to the minimum, it is possible, he thinks, to obviate all trouble from this source. In case the headache develops, it is possible to cure it at once by lumbar puncture, thus relieving the pressure. This measure never failed in his experience, all headache vanishing in from 30 to 40 minutes at latest.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed, page 912.

81 (LXXXIII, Nos. 5-6, pp. 401-590.) Fracture of the Neck of the Femur and Healing Process. (Schenkelhalsfrakturen.) P. Frangenheim.

82 Peritonitis of Obscure Origin. (Perit. mit schwer erkennbarem Ausgangspunkt.) R. Oppenheimer.

83 Isolated Fracture of Great Trochanter. (Is. Frakt. des Tr. major.) Kruger.

84 *Opening Esophagus through the Neck to Remove a Foreign Body. (Oesophagotomia cervicalis externa.) Naumann.

85 *Cicatrix-forming Action of Sections of Thyroid Gland after Suturing the Esophagus. (Narbenbildende Wirkung von Schilddrüsenschnitten.) D. v. Navratil.

86 *Gastroenterostomy. (Beitrag zur Gast.) L. Delaloye.

87 Dislocation of Interarticular Fibrocartilage in Knee. (Men.-Luxation im Kniegelenk.) Bergmann.

88 Irreducible Dislocation of Knee. (Irreponiblen Kniegelenksluxationen.) E. Ruppanner.

89 Two Cases of Carcinoma of Small Intestine. (Jejunum, Ileumcarcinome.) J. Finsterer.

90 *Treatment of Fracture of Calcaneus. (Fersenbeinbrüche.) E. Becker.

91 Retroperitoneal Cysts or Gravity Abscess? (Cysten oder Senkungsabszesse?) H. Minssen and Weydemann.

84. **External Esophagotomy for Removal of Foreign Bodies.**—Naumann adds 28 new cases to the list of 326 cases collected by Balacescu in 1903, with a further list of 12 similar operations performed in his service at Zwickau.

85. **Cicatrix-Forming Action of Slices of Thyroid Gland.**—Navratil's article issues from Dollinger's clinic at Budapest, and supplements his communication of a year ago relating the remarkable action of the thyroid gland which he had sutured over an opening in the esophagus first closed with a tobacco-pouch suture. The upper pole of the thyroid gland was not disturbed, but the lower pole was drawn slightly to one side to fit over the sutured wound. The thyroid tissue displayed such marked clinging and cicatrix-forming properties in this case that he has since experimented with isolated slices of thyroid gland, and found that they are equally efficient in this respect, growing intimately into the tissues in a very short time and retaining their vitality indefinitely. His experiments were made on dogs.

86. **Gastroenterostomy.**—Delaloye reviews the experiences with this operation at Feurer's clinic at St. Gallen, a total of 117 cases. The number of gastroenterostomies for cancer is growing constantly less, as the conditions are so much better after resection of the pylorus that this is preferred whenever possible. The mortality after resection has been only 16.66 per cent. of 42 cases, and zero in the last series of 20. The mortality of the gastroenterostomies was 25.64 per cent. The cause of death was the vicious circle in 4 cases; pulmonary edema in 1; hemorrhage from gastric ulcer in 1; pneumonia in 5; peritonitis in 8, and marasmus in 10 cases. The peritonitis was due in 4 instances to gaping of the wound.

90. **Treatment of Fracture of the Calcaneus.**—Ideal functional results are reported by Becker in a case of fracture of the calcaneus treated by repose and ice for ten days, after which the fracture was reduced by means of an elevator driven perpendicularly straight across the bone, close to its

under surface, toward the inner margin of the foot. The handle of the elevator was then lowered, thus bringing the point close under the internal malleolus, where it emerged through a small incision. With traction on the handle and on the point of the elevator, the fractured bone was brought into place, and while an assistant held the parts in this position Becker introduced a drill from behind, passing upward through skin and bone along the median plane of the calcaneus. The exact distance had been calculated with the Roentgen rays beforehand and marked on the drill, so that it stopped just short of the extreme end of the bone, thus not emerging into the joint. He left the drill quietly in place as a support for the parts and did not remove it for six weeks, when, after chiseling off a projecting piece of bone from the lower surface of the calcaneus, conditions were apparently restored to normal.

Jahrbuch f. Kinderheilkunde, Berlin.

Last indexed, page 1306.

92 (LXV, No. 3, pp. 263-392.) *Alimentary Intoxication. (Intoxikation im Verlaufe der Ernährungsstörungen.) H. Finkelstein.
93 Intestinal Putrefaction with Different Kinds of Infant Food. (Darmfäulnis im Säuglingsalter.) N. Soldin.
94 Intubation at Munich. (15 Jahre Intubation.) P. Reich.

92. **Alimentary Intoxication.**—Finkelstein continues his study of this subject; his previous communication was summarized in THE JOURNAL, April 13, 1907, page 1306. The evidence which he presents establishes for the first time, he says, that the food—without the cooperation of bacteria—can become an active poison in the organism. He preaches that the symptoms of intoxication in the course of disturbances of nutrition are of an alimentary nature. They result from the fact that a larger quantity of certain elements of the food are ingested than the organism can dispose of. Fat and sugar are mainly responsible, while albumin can not be incriminated, and the participation of the salts is still a question. Nothing definite, he states, is known in regard to the nature of the poisons; there are objections to the assumption of acidosis. The fundamental importance of these facts for the comprehension of conditions of this kind in infants and for their treatment is beyond question, he believes. The insight thus obtained into the processes in the child will be found instructive also for many questions of general pathology. The symptom-complex in the adult which we call autointoxication and ascribe to intestinal toxins may be due in reality to this pathologic fate of certain elements of the food in the intermediate metabolism. For the first time, he continues, the long-sought evidence is forthcoming that there is such a thing as "alimentary fever." He believes that careful observation of adult patients, similar to his research on infants, will reveal many important findings. The food does not become a poison except when it is taken into an organism in which the metabolism is more or less morbid. The indispensable prerequisite for the "intoxication" is the existence of a peculiar general insufficiency of the functions connected with nutrition. This is the real trouble, while the "intoxication" is only a transient symptom. He gives a number of typical tracings and clinical histories to show the importance of the therapeutic results obtained by treatment of infants on these principles. The tracings show the influence of systematically planned changes in the diet. The "intoxication" could be made to appear, vanish and reappear at will by changing the diet, demonstrating the unmistakable connection between the food and the syndrome observed. The symptoms of intoxication appear as a regular reaction on the part of the body to certain changes in the kind and amount of the food. He deplores that lack of comprehension of these principles has resulted in injury to some of the infants in his charge in former years. Supposing, as he had been taught, that all febrile disturbances accompanied by serious general symptoms could be only the work of bacteria, and that the body required ample nourishment to support it in its struggle against the bacterial invasion, he plied the infants with even more food than usual, until convinced by the concurrent testimony of his tracings in numerous cases that the restriction of food or withdrawal of all food is the only route to safety. His experience teaches that certain febrile conditions, suggesting typhoid and cholera, are solely and exclusively dependent on alimentary influences, and can be arrested at any time by regulating the diet. The intoxication results when too much food in general or too much of certain ingredients is given, beyond what the organism can assimilate. These elements have an abnormal fate in the intermediate metabolism, and the "intoxication" is the result.

Zeitschrift f. Geb. und Gyn., Stuttgart.

Last indexed, page 1223.

95 (LIX, No. 2, pp. 205-384.) *More Active Tendency in Obstetrics. (Berechtigung einer aktiveren Richtung in der geb. Ther.) M. Hofmeier.
96 Lithopedion in a Woman of 85. (Lithopädion.) J. Wallart.
97 Gartner's Duct; Congenital Malformations and Cancer. (Gartn. Gang beim Menschen.) R. Meyer.
98 *Changes in Placenta, Cord and Membranes in Syphilis, and Their Relations to Pale Spirochete. (Veränderungen, etc., bei Syph.) F. Mohn.
99 *Adhesions in Abdominal Cavity Result of Infectious Processes. (Adhäsionsbildung.) F. Fromme.
100 *Bladder Stone Obstructing Delivery. (Geburtshindernis.) G. A. Wagner.

95. **Tendency to More Active Obstetric Measures.**—Hofmeier tabulates the results of prophylactic and active obstetric measures in his clinic and compares them with those of others. In 104 cases requiring prophylactic intervention, such as forceps, version or premature delivery, 26 of the children died during delivery, but all the mothers recovered. On the other hand, all but one left the maternity alive of 27 children delivered by Cesarean section, pubiotomy or symphyseotomy, but 3 of the mothers died, all otherwise healthy women in the prime of life. It was found that 29 per cent. of the children in this last group had died before the end of the first year. He thinks that these figures speak for themselves, and that medical students will get a confused notion of obstetrics as they see that they are taught one kind of obstetrics for their practice while an entirely different kind is practiced in the clinics. He believes on the whole that obstetric interventions might be more frequent, especially forceps operations, in the interests of the children. But the all-around benefits of more extensive operations, especially the outcome for the mother, should be well studied, not merely whether a few more dozens are to be added every year to the 2,025,847 infants born annually in the German empire, especially as only 70 per cent. of the dozens thus saved live to be a year old.

98. **Syphilitic Changes in Placenta, Cord and Membranes, and the Pale Spirochete.**—When Mohn commenced his research on this subject two years ago the *Spirochæta pallida* had not been discovered, but its discovery explained later many of his findings. The presence of the pale spirochete in more than 50 per cent. of the umbilical cords examined and in almost 70 per cent. of the afterbirths, confirms its specific importance, he thinks. The absence of nerves in the placenta shows that the spirochetes found can not be explained away as "silver-stained nerve fibrils" as some have asserted in respect to other tissues. The fact that the placenta and membranes are free from external infection also excludes error from this source. Spirochetes were never found in the decidua nor intervillous spaces, but they swarmed in the fetal villi and in the umbilical cord when the fetus exhibited signs of syphilis—not otherwise. He thinks that all this shows that the fetus, and not the mother, is the main source of the infection in such cases. The parasites find their way into the ovum from the mother or in the spermatic fluid, or pass from the mother to the fetus later. They proliferate in the fetus, acquiring new virulence, and pass thence into the placental circulation.

99. **How Adhesions Form in Abdominal Cavity.**—Fromme relates extensive experiments on animals, injecting blood into the abdominal cavity, with or without injury of the serosa, and with or without the presence of germs. The results demonstrated conclusively that blood and serum, even with extensive defects in the serosa, are unable to induce the formation of adhesions in the absence of germs. But as soon as the accumulation of blood becomes infected, a circumscribed infectious process results, with more or less paralysis of the adjoining intestine, and subsequent development of adhesions. Accumulated blood can thus be left in the abdominal cavity without fear if it is not infected. The blood around the field of operation is always more or less infected, and should be scrupu-

lously removed. This should be done especially in case of ruptured tubal pregnancy. But it is unwise to try to remove all the blood which has settled at inaccessible parts of the abdominal cavity. This would spread germs throughout the cavity and, by the longer time required, would bring new germs to the spot. The trifling advantage that the body is spared the absorption of the blood would be far outweighed by the disadvantages of spreading infection to blood in remote nooks. The clots, therefore, which are not in contact with the field of operation in case of a ruptured tubal pregnancy should, he states, be left undisturbed.

100. **Bladder Stone Obstructing Childbirth.**—Wagner gives a skiagram of the stone in his case, and describes the details of this and 46 other cases of the kind on record. Delivery was prevented by a stone in the bladder, fully 2x4x6 cm., impacted between the symphysis and the head of the child. The nature of the obstruction was not recognized until after 4 days of labor, when it proved possible to reduce the stone under chloroform. The child was then extracted, showing incipient maceration. The patient had suffered from bladder disturbances for several months, urination at times being abruptly arrested but returning if she reclined. There were also cramp-like pains in the bladder region. Eight years previously she had had about the same symptoms for a time, terminating with the expulsion of a bladder stone the size of a bean. The experiences related demonstrate the advisability of removing a bladder stone before a childbirth, as it is almost certain to cause severe injury of the wall of the bladder or vagina or of the sphincter during delivery, besides offering a mechanical obstacle to the childbirth. The operations *sub partu* show as good results on the whole as when the stone was reduced, far better than when the delivery proceeded without regard to the stone. Colpocystotomy proved most successful, especially when the bladder wall was sutured at once. This should be the routine technic if it proves impossible to reduce the stone under general anesthesia.

Brazil Medico, Rio de Janeiro.

Last indexed, XLVI, page 393.

101 (XIX, Nos. 9-15, pp. 81-150.) Treatment of Edema. (Edemas.) P. Guimaraes.
102 *Balsam of Peru in Treatment of Wounds. (Feridas.) Id.
103 Hysteria. (Hysteria.) A. Austregesilo.
104 *Tropical Ulceration. (Existe a Verruga do Peru no Estado do Rio Grande do Sul?) E. v. Bassewitz and Unna.
105 Infection with Ankylostomiasis through the Skin. (Infestaçao da ank. pela pelle.) A. Austregesilo.
106 Frequency of Dermatoses Among Infants at Rio. (Frequencia das dermatoses infantis.) Moncorvo Filho.
107 Brain Tumors. (Tumores cerebraes.) Brant Paes Leme.
108 (Nos. 16-20, pp. 151-200.) Pityriasis with Keratinization of Epidermis. (Pityriasis rubra pilaris.) F. Terra.
109 Benefit from Brewer's Yeast in Case of Multiple Glandular Suppuration. (Abcessos lymphaticos e levedura de cerveja.) A. de Mello.

102. **Balsam of Peru in Treatment of Wounds.**—Guimaraes describes a few cases of wounds treated with balsam of Peru after cleansing with boiled water. The balsam was applied for about 10 days and the results were highly satisfactory in each case. The injuries were mostly on the hand or foot and caused by machinery. In some cases the balsam was applied to a burn of the second degree, or in case of compound fracture. The urine was normal under this treatment in the cases in which it was examined for possible injurious action of the balsam on the kidneys.

104. **Tropical Groin Ulceration.**—Bassewitz remarks that Peruvian verruga is the most perfect type known of an affection limited to a certain geographical region, within the degrees of 75 and 81 longitude, and 8 and 16 latitude. It reigns in a limited number of valleys at an altitude of from 1,500 to 6,000 feet above the sea. The prevalence of a groin ulceration in his part of Brazil led to the suspicion that the affection might be an attenuated form of Peruvian verruga, imported from Peru, but the evidence is against this. He regards the affection in question as "granuloma telangiectodes." Unna examined some specimens of the lesions sent to him and says that they suggest a circumscribed angiofibroma of the skin. The epidemic and autoinoculable character of the groin ulceration suggests a possible venereal origin, and the description was first published with the title "Granuloma Venerea."

Book Notices

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

MODERN MEDICINE, ITS THEORY AND PRACTICE in Original Contributions by American and Foreign Authors. Edited by William Osler, M.D., Regius Professor of Medicine in Oxford University, England, assisted by Thomas McCrae, M.D. Volume I.—Evolution of Internal Medicine—Predisposition and Immunity, etc. Illustrated. Cloth. Pp. 937. Price, $6.00 net. Philadelphia and New York: Lea Bros. & Co., 1907.

GENERAL SURGERY, of the Practical Medicine Series, Under the General Editorial Charge of G. P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Postgraduate Medical School. Vol. II, Edited by John B. Murphy, A.M., M.D., LL.D., Professor of Surgery in Rush Medical College. Series 1907. Cloth. Pp. 608. Price, $2.00 per volume. Chicago: Year Book Publishers.

UEBER ELEKTRISCHE ENTLADUNGEN IM LUFTVERDÜNNTEN RAUM, Geisslerlicht, Kathoden—und Kanalstrahlen, von Prof. Dr. Ernst Sommer, Experimentalvortrag, gehalten in der Naturwissenschaftlichen Gesellschaft der Stadt Winterthur. Paper. Pp. 18. Price, .75 mk. Munich: Verlag der Aerztlichen Rundschau.

MUTTERSORGEN UND MUTTERFREUDEN Wie erhalten wir unsere kleinen Kinder gesund? Ratschläge fur die junge Frau von Dr. med. Eugen Neter, in Mannheim. Paper. Pp. 77. Price, 1.20 mk. Munich: Verlag der Aerztlichen Rundschau.

CENTRAL INDIANA HOSPITAL FOR THE INSANE, Indianapolis. Fifty-eighth Annual Report of the Board of Trustees and Superintendent. For the Fiscal Year Ending Oct. 31, 1906. Paper. Pp. 120. Indianapolis: W. B. Burford, 1906.

ANESTHETICS, Their Uses and Administration, by D. W. Buxton, M.D., B.S., Member of the Royal College of Physicians. Fourth Edition. Cloth. Pp. 415. Price, $2.50 net. Philadelphia: P. Blakiston's Son & Co., 1907.

THIRTY-FIRST ANNUAL REPORT of the Ladies' Union Charitable Society Conducting the Lawrence (Mass.) General Hospital and Children's Home, for the Year Ending Sept. 30, 1906. Paper. Pp. 69.

CATALOGUE OF THE OFFICERS AND GRADUATES OF COLUMBIA UNIVERSITY in the City of New York, From the Foundation of King's College in 1754. Cloth. Pp. 921. Printed for the University, 1906.

TENTH ANNUAL REPORT of the Loomis Sanatorium and Annex for the Treatment of Tuberculosis. Liberty, Sullivan County, New York, With Medical Supplement. October 31, 1906. Paper. Pp. 49.

NEUGALENISMUS eine auf biologischen Anschauungen aufgebaute Krankheitslehre, von Kreisarzt Dr. Bachmann. Paper. Pp. 18. Price, .75 mk. Munich: Verlag der Aerztlichen Rundschau.

STUDIES IN EXPERIMENTAL ALCOHOLISM. Hygienic Laboratory Bulletin No. 33, by Reid Hunt; M. J. Rosenau, Director. Paper. Pp. 43. Washington: Government Printing Office, 1907.

CREIGHTON MEMORIAL, ST. JOSEPH'S HOSPITAL, Omaha, Neb., Twenty-seventh Annual Report, for the Year Ending Dec. 31, 1906. Paper. Pp. 42. Omaha: Burkley Printing Co.

ANNUAL REPORT OF THE ASYLUM FOR THE CHRONIC INSANE of Milwaukee County, for the Year Ending Sept. 30, 1906. Paper. Pp. 56. Milwaukee: Edw. Keogh Press, 1907.

MONTHLY SUMMARY OF COMMERCE AND FINANCE OF THE UNITED STATES for February, 1907. Paper. Pp. 255. Washington: Government Printing Office, 1907.

TWENTY-SECOND ANNUAL REPORT of the Adirondack Cottage Sanitarium, Saranac Lake, N. Y., November, 1906. With Medical Supplement. Paper. Pp. 16.

TWENTY-SECOND ANNUAL REPORT of the Board of Health of the City of Altoona, for the Year 1906. Paper. Pp. 13.

NEW PATENTS.

Recent patents of interest to physicians:

848458. Clinical thermometer. Walter P. Grafton, Old Charlton, England.
848032. Douche-cot. James H. Herman, Ambridge, Pa.
848173. Fracture apparatus. Samuel G. Hubbell, Milwaukee, Wis.
848126. Anastomotic clamp. Giles F. Roosevelt, Denver.
848579. Inhaler. Gustav A. Thiede, Baltimore, Md.
848518. Electrical medical apparatus. Carlos Van Bergh, Winnipeg, Manitoba, Canada.
848423. Surgical table top. Marshal I. Young, Fort Dodge, Iowa.
849353. Electric ear-phone. Lewis F. Clarke, Boston.
849018. Making camphor from isoborneol. Curt Philipp, Dresden, Germany.
848856. Osteopathic table. Henry T. Root, Kirksville, Mo.
849344. Illuminable speculum. R. H. Wappler, New York.
849529. Massage device. Forest S. Cartwright, Chicago.
849368. Electrically-heated hot-water bottle. Herbert W. Christian, Toledo, Ohio.
849725. Catamenial bandage. Mary A. Cook, Bridgeport, Conn.
849471. Abdominal guard and supporter. John Gamble, Philadelphia.
849472. Bed-pan. Heiman Gold, New York.
849841. Physiographical instrument. John P. Goode, Chicago.
849844. Vibrator. J. S. C. Laurence, Oakland, Cal.
849815. Producing formaldehyd preparations. Paul Rosenberg, Berlin, Germany.
849924. Massage instrument. Wm. G. Shelton, Chicago.
850416. Means for purifying and sterilizing water by ozonized air. James H. Bridge, Philadelphia.
850624. Apparatus for lifting invalids. Wm. B. Closson, Magnolia, Mass.
850298. Suspensory. Frank E. De Mars, New York.
850849. Disinfecting tablet. W. H. Power, London, England.
850281. Bandage. Jeanne Walter, New York.